

Towns of Walpole/Charlestown, NH
Federal No. X-A000(487), NHDOT No. 14747

N.H. Route 12 Reconstruction

**AMENDMENT TO
WATER QUALITY CERTIFICATE APPLICATION**

Memorandum

Attachment A – HydroCAD model & results for Infiltration BMP with dams at low points

Attachment B – Infiltration Practice Design Criteria Worksheets with stage-storage and
hydrograph tables

Attachment C – Miscellaneous Infiltration BMP Calculations

Attachment D – Infiltration BMP Design Details and Profile

Prepared for:

New Hampshire Department of Transportation
Bureau of Highway Design

July 20, 2017

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Subject Amendment to Water Quality Certificate Application
Project Name Walpole-Charlestown 14747
Attention Donald Lyford, P.E., NHDOT Bureau of Highway Design
From John Blackburn, P.E.
Date July 20, 2017
Copies To Samantha Fifield, P.E., NHDOT Bureau of Highway Design

The Water Quality Certificate Application for the reconstruction of NH 12 in the Towns of Walpole and Charlestown is being amended due to new information received regarding constructability and cost of the proposed infiltration BMP. This memorandum describes the nature of the changes to the proposed BMP, revises several appendices, and provides additional supporting information. The changes are based on comments received from various bureaus of the New Hampshire Department of Transportation (NHDOT) subsequent to the original submittal of the Water Quality Certificate Application.

The following two changes shall be made to the proposed infiltration BMP:

1. The NHDOT Bureau of Construction revised their recommendation regarding the impermeable dams. Installing all of the six inch high impermeable dams that separate treatment cells within the proposed infiltration BMPs will be cost prohibitive. The intermediate dams shall be removed from the proposed design, and only dams at the BMP low points at transverse drains shall be installed. Instead of the water quality volume (WQV) being retained by a series of six inch high dams over the length of the infiltration BMP, the WQV will be retained only by the dam at the low point. This reduces the total number of dams to be constructed from 84 to 19.

A HydroCAD model was developed to analyze the BMP with dams only at the low points adjacent to the transverse drains. Using the NH 12 profile, the surface area of water detained within the infiltration BMP by the dam was measured. The model assumes that infiltration through the bottom of the BMP is occurring. The applicable infiltration rate for the subsurface soils was applied to each BMP. A special storm event was determined through several iterations to find the necessary precipitation amount over 24 hours that produces the required water quality volume.

The results from the dynamic HydroCAD analysis indicate that for 13, of the 19, low point dams, a 6 inch dam height will retain the maximum height of the WQV while infiltrating additional stormwater up to the top of the dam. The remaining 6 low point dams require a dam height greater than 6 inches to retain the maximum height of the WQV, while also infiltrating additional stormwater up to the top of the dam. For all extended BMP cells, during the 10 year and 50 year storms, the height of the water located within the BMP cells does not reach the height of the roadway subgrade materials.

The WQV peak determined by the HydroCAD model is typically less than the WQV calculated by the Infiltration Practice Design worksheets. The reason for the difference is that as soon as stormwater enters the BMP, infiltration begins and continues for the duration of the event. Thus, the infiltration BMPs do not need to store the full, static WQV that the design storm is generating. The HydroCAD model works dynamically to simulate the real-time inflow and outflow behavior of the BMP.

Peak elevations for the 10 year and 50 year storm events, as shown in the Infiltration Practice Design worksheets, were determined from a separate HydroCAD model which assumes that infiltration was no longer occurring and all water was overflowing the dam into the transverse drains. The peak elevations, therefore, represent a worst-case scenario for BMP operation. The HydroCAD model and results for these storm events is included in Appendix 7 of the Pollutant Loading Analysis Report in the original Water Quality Certificate Application.

The drain time (T_{DRAIN}) calculations in the Infiltration Practice Design worksheets provide a basic calculation of drain time, assuming that infiltration begins only after the complete volume has entered the pond. This value differs from peak times and draw down times calculated by the HydroCAD model, which assumes that infiltration begins as soon as stormwater flow enters it and continues until empty. Hydrograph tables generated by HydroCAD are included with the Infiltration Practice Design worksheets in Attachment B.

The BMP details were updated to show dams only at the low points. A revised chart on Sheet 16 indicates the necessary height of each dam. The height of the impermeable geomembrane liner along the left side vertical face of the BMP was set to a constant 15 inches, which will ensure the WQV remains contained within all BMPs regardless of dam height.

2. The NHDOT Bureau of Bridge Design commented that the proposed infiltration BMP should not be constructed within 25 feet of either side of the new 6.5'x5.5' concrete box culvert located at Sta. 2105+67. Stormwater drainage infiltrating through the bottom of the BMP can pond on top of the new culvert, potentially causing long term durability concerns. As a result, the infiltration BMP will end at Sta. 2105+40 and resume at Sta. 2105+95. A new transverse underdrain at Sta. 2105+96.5 was added.

The pollutant loading calculations were checked to determine the change, if any, that removal of 55 linear feet of proposed BMP over the culvert would have. The total proposed length of infiltration BMPs under NH 12 is 9,063 linear feet. Overall, the revised calculations indicate that reduction percentages are nearly similar (approximately 0.4% less) to the original calculations. The table on the following page summarizes the original and revised proposed load reductions in TSS, TP, and TN for the overall project.

Revised pollutant reduction calculations:

	TSS (lbs/yr)		TP (lbs/yr)		TN (lbs/yr)	
	Original	Revised	Original	Revised	Original	Revised
Pre Development Loads	10,707.6		24.1		226.2	
Post Development Loads (with BMPs)	5180.5	5230.1	12.5	12.6	112.9	113.9
Post Development – Pre Development	-5,527.0	-5,477.5	-11.6	-11.5	-113.4	-112.3
% Difference from Pre Development	-51.6%	-51.2%	-48.1 %	-47.7%	-50.1%	-49.7%

The following attachments are included with this amendment:

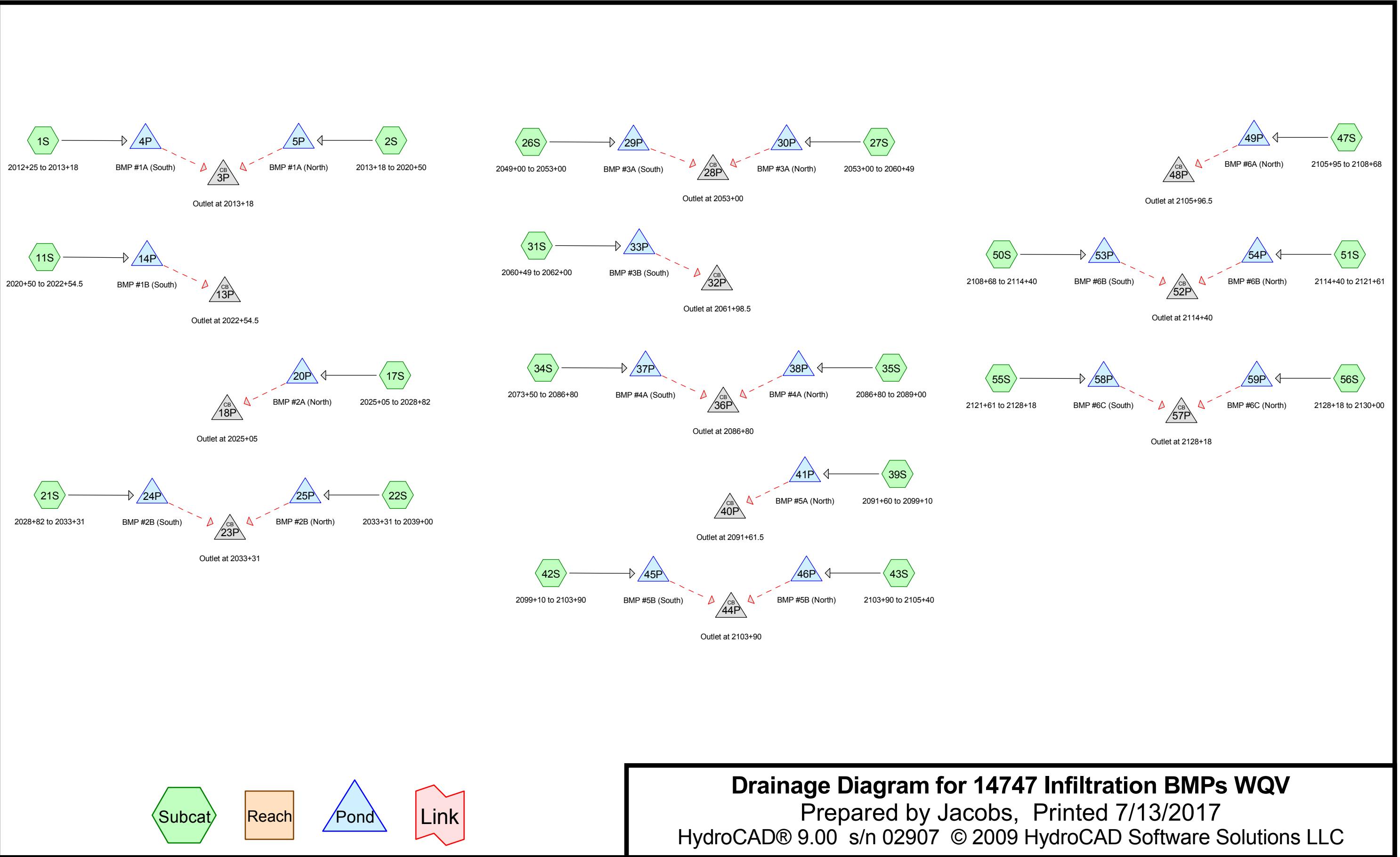
- A. HydroCAD model and results of the infiltration BMPs for the water quality volume with dams at low points only.
- B. Infiltration Practice Design Criteria worksheets, with HydroCAD stage-storage tables and hydrographs in tabular format. These replace the worksheets included in Appendix 6 of the Pollutant Loading Analysis Report. Three input variables were revised:
 1. The impervious areas were revised to match the entire contributing area, including the infiltration stone panels. The total area was modeled as an impervious surface for stormwater runoff being directed to the BMP.
 2. The Volume (V) now reflects the stormwater capacity that is retained by the dams at the low points only.
 3. The surface area of the bottom of the pond (ASA) is equivalent to the area of the stormwater retained by the dams at the low points. This is also the area for which infiltration occurs.

For ease of reference, a table that correlates the Infiltration Practice Design Criteria worksheets with the HydroCAD model is also included in this attachment.

- C. Miscellaneous BMP calculation sheets. These calculation sheets replace the sheets included in Appendix 8 of the Pollutant Loading Analysis Report.
- D. BMP details and profile. The details sheets were revised to remove the intermediate dams. Profile sheets were revised to show removal of the infiltration BMP over the proposed box culvert at Sta. 2105+67. These plans replace the plans included in Appendix 9 of the Pollutant Loading Analysis Report.

ATTACHMENT A:

**HYDROCAD MODEL AND RESULTS FOR WATER QUALITY VOLUME
WITH DAMS AT LOW POINTS**



Drainage Diagram for 14747 Infiltration BMPs WQV
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14747 Infiltration BMPs WQV

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.262	98	Pavement and infiltration stone panel (1S, 2S, 11S, 17S, 21S, 22S, 26S, 27S, 31S, 34S, 35S, 39S, 42S, 43S, 47S, 50S, 51S, 55S, 56S)

Summary for Subcatchment 1S: 2012+25 to 2013+18

Runoff = 0.14 cfs @ 11.96 hrs, Volume= 0.007 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	3,720	98 Pavement and infiltration stone panel
	3,720	100.00% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0					Direct Entry, Direct into BMP

Summary for Subcatchment 2S: 2013+18 to 2020+50

Runoff = 1.07 cfs @ 11.96 hrs, Volume= 0.053 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	29,280	98 Pavement and infiltration stone panel
	29,280	100.00% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0					Direct Entry, Direct into BMP

Summary for Pond 3P: Outlet at 2013+18

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 313.00' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	313.00'	15.0" Round Culvert L= 50.0' Ke= 0.900 Outlet Invert= 311.50' S= 0.0300 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior
#2	Device 1	314.25'	0.3" Horiz. Pipe perforations X 540.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=313.00' (Free Discharge)

↑1=Culvert (Controls 0.00 cfs)

↑2=Pipe perforations (Controls 0.00 cfs)

Summary for Pond 4P: BMP #1A (South)

Inflow Area = 0.085 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 0.14 cfs @ 11.96 hrs, Volume= 0.007 af
 Outflow = 0.09 cfs @ 12.02 hrs, Volume= 0.007 af, Atten= 34%, Lag= 3.9 min
 Discarded = 0.09 cfs @ 12.02 hrs, Volume= 0.007 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 316.70' @ 12.02 hrs Surf.Area= 697 sf Storage= 52 cf

Plug-Flow detention time= 9.6 min calculated for 0.007 af (100% of inflow)
 Center-of-Mass det. time= 9.6 min (788.5 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	316.60'	1,325 cf	Custom Stage Data (Prismatic) Listed below 4,417 cf Overall x 30.0% Voids
<hr/>			
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
316.60	0	0	0
317.10	3,344	836	836
317.60	3,660	1,751	2,587
318.10	3,660	1,830	4,417
<hr/>			
Device	Routing	Invert	Outlet Devices
#1	Secondary	317.10'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	316.60'	5.600 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.09 cfs @ 12.02 hrs HW=316.70' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.09 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=316.60' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 5P: BMP #1A (North)

Inflow Area = 0.672 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 1.07 cfs @ 11.96 hrs, Volume= 0.053 af
 Outflow = 0.67 cfs @ 12.03 hrs, Volume= 0.053 af, Atten= 38%, Lag= 4.1 min
 Discarded = 0.67 cfs @ 12.03 hrs, Volume= 0.053 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 317.02' @ 12.03 hrs Surf.Area= 5,176 sf Storage= 324 cf

Plug-Flow detention time= 2.9 min calculated for 0.053 af (100% of inflow)
 Center-of-Mass det. time= 2.9 min (781.7 - 778.8)

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

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Volume	Invert	Avail.Storage	Storage Description
#1	316.60'	3,661 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 12,204 cf Overall x 30.0% Voids
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
316.60	0	0	0
317.10	6,208	1,552	1,552
317.60	10,800	4,252	5,804
318.10	14,800	6,400	12,204

Device	Routing	Invert	Outlet Devices
#1	Secondary	317.60'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	316.60'	5.600 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.67 cfs @ 12.03 hrs HW=317.02' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.67 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=316.60' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 11S: 2020+50 to 2022+54.5

Runoff = 0.31 cfs @ 11.96 hrs, Volume= 0.015 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	8,538	Pavement and infiltration stone panel
	8,538	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Direct into BMP

Summary for Pond 13P: Outlet at 2022+54.5

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 316.95' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	316.95'	12.0" Round Culvert L= 42.0' CPP, projecting, no headwall, Ke= 0.900

#2 Device 1 317.45' Outlet Invert= 316.50' S= 0.0107 '/' Cc= 0.900 n= 0.012
0.3" Horiz. Pipe perforations X 612.00 C= 0.600
 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=316.95' (Free Discharge)

↑**1=Culvert** (Controls 0.00 cfs)

↑**2=Pipe perforations** (Controls 0.00 cfs)

Summary for Pond 14P: BMP #1B (South)

Inflow Area =	0.196 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
Inflow =	0.31 cfs @ 11.96 hrs, Volume= 0.015 af
Outflow =	0.21 cfs @ 12.02 hrs, Volume= 0.015 af, Atten= 34%, Lag= 3.9 min
Discarded =	0.21 cfs @ 12.02 hrs, Volume= 0.015 af
Secondary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 319.17' @ 12.02 hrs Surf.Area= 1,601 sf Storage= 120 cf

Plug-Flow detention time= 9.6 min calculated for 0.015 af (100% of inflow)
 Center-of-Mass det. time= 9.6 min (788.5 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	319.02'	2,627 cf	Custom Stage Data (Prismatic) Listed below 8,758 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
319.02	0	0	0
319.52	5,336	1,334	1,334
320.02	8,120	3,364	4,698
320.52	8,120	4,060	8,758

Device	Routing	Invert	Outlet Devices
#1	Secondary	319.52'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	319.02'	5.600 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.21 cfs @ 12.02 hrs HW=319.17' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=319.02' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 17S: 2025+05 to 2028+82

Runoff = 0.56 cfs @ 11.96 hrs, Volume= 0.028 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	15,259	98 Pavement and infiltration stone panel
	15,259	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Direct into BMP

Summary for Pond 18P: Outlet at 2025+05

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 319.00' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	319.00'	15.0" Round Culvert L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 318.00' S= 0.0217 '/' Cc= 0.900 n= 0.012
#2	Device 1	320.35'	0.3" Horiz. Pipe perforations X 540.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=319.00' (Free Discharge)

↑ 1=Culvert (Controls 0.00 cfs)

↑ 2=Pipe perforations (Controls 0.00 cfs)

Summary for Pond 20P: BMP #2A (North)

Inflow Area = 0.350 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 0.56 cfs @ 11.96 hrs, Volume= 0.028 af
 Outflow = 0.33 cfs @ 12.03 hrs, Volume= 0.028 af, Atten= 40%, Lag= 4.3 min
 Discarded = 0.33 cfs @ 12.03 hrs, Volume= 0.028 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 320.99' @ 12.03 hrs Surf.Area= 2,578 sf Storage= 181 cf

Plug-Flow detention time= 3.3 min calculated for 0.028 af (100% of inflow)
 Center-of-Mass det. time= 3.3 min (782.1 - 778.8)

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

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Volume	Invert	Avail.Storage	Storage Description
#1	320.52'	1,647 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 5,491 cf Overall x 30.0% Voids
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
320.52	0	0	0
321.02	2,748	687	687
321.52	4,824	1,893	2,580
322.02	6,820	2,911	5,491

Device	Routing	Invert	Outlet Devices
#1	Secondary	321.02'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	320.52'	5.600 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.33 cfs @ 12.03 hrs HW=320.99' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.33 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=320.52' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 21S: 2028+82 to 2033+31

Runoff = 0.66 cfs @ 11.96 hrs, Volume= 0.033 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	17,960	98 Pavement and infiltration stone panel
	17,960	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Direct into BMP

Summary for Subcatchment 22S: 2033+31 to 2039+00

Runoff = 0.83 cfs @ 11.96 hrs, Volume= 0.041 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	22,760	98 Pavement and infiltration stone panel
	22,760	100.00% Impervious Area

14747 Infiltration BMPs WQV

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Type II 24-hr WQV Rainfall=1.16"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry, Direct into BMP				

Summary for Pond 23P: Outlet at 2033+31

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 314.25' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	318.75'	15.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 317.00' S= 0.0350 '/' Cc= 0.900 n= 0.012
#2	Device 1	314.25'	0.3" Horiz. Pipe perforations X 540.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=314.25' (Free Discharge)

1=Culvert (Controls 0.00 cfs)

2=Pipe perforations (Controls 0.00 cfs)

Summary for Pond 24P: BMP #2B (South)

Inflow Area = 0.412 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 0.66 cfs @ 11.96 hrs, Volume= 0.033 af
 Outflow = 0.44 cfs @ 12.02 hrs, Volume= 0.033 af, Atten= 34%, Lag= 3.9 min
 Discarded = 0.44 cfs @ 12.02 hrs, Volume= 0.033 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 321.50' @ 12.02 hrs Surf.Area= 3,367 sf Storage= 253 cf

Plug-Flow detention time= 9.6 min calculated for 0.033 af (100% of inflow)

Center-of-Mass det. time= 9.6 min (788.5 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	321.20'	3,292 cf	Custom Stage Data (Prismatic) Listed below 10,972 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
321.20	0	0	0
321.70	5,544	1,386	1,386
322.20	10,136	3,920	5,306
322.70	12,528	5,666	10,972

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

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Device	Routing	Invert	Outlet Devices
#1	Secondary	321.70'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	321.20'	5.600 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.44 cfs @ 12.02 hrs HW=321.50' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.44 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=321.20' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 25P: BMP #2B (North)

Inflow Area = 0.522 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 0.83 cfs @ 11.96 hrs, Volume= 0.041 af
 Outflow = 0.39 cfs @ 12.04 hrs, Volume= 0.041 af, Atten= 53%, Lag= 5.3 min
 Discarded = 0.39 cfs @ 12.04 hrs, Volume= 0.041 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 322.00' @ 12.04 hrs Surf.Area= 3,021 sf Storage= 365 cf

Plug-Flow detention time= 6.0 min calculated for 0.041 af (100% of inflow)
 Center-of-Mass det. time= 6.0 min (784.8 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	321.20'	1,215 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 4,050 cf Overall x 30.0% Voids
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
321.20	0	0	0
322.03	3,116	1,293	1,293
322.20	3,680	578	1,871
322.70	5,036	2,179	4,050

Device	Routing	Invert	Outlet Devices
#1	Secondary	322.03'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	321.20'	5.600 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.39 cfs @ 12.04 hrs HW=322.00' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.39 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=321.20' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 26S: 2049+00 to 2053+00

Runoff = 0.59 cfs @ 11.96 hrs, Volume= 0.029 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	16,000	98 Pavement and infiltration stone panel
	16,000	100.00% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0				Direct Entry, Direct into BMP	

Summary for Subcatchment 27S: 2053+00 to 2060+49

Runoff = 1.08 cfs @ 11.96 hrs, Volume= 0.053 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	29,436	98 Pavement and infiltration stone panel
	29,436	100.00% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0				Direct Entry, Direct into BMP	

Summary for Pond 28P: Outlet at 2053+00

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 321.00' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	321.00'	15.0" Round Culvert L= 49.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 320.00' S= 0.0204 '/' Cc= 0.900 n= 0.012
#2	Device 1	321.63'	0.3" Horiz. Pipe perforations X 540.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=321.00' (Free Discharge)

↑1=Culvert (Controls 0.00 cfs)

↑2=Pipe perforations (Controls 0.00 cfs)

Summary for Pond 29P: BMP #3A (South)

Inflow Area = 0.367 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 0.59 cfs @ 11.96 hrs, Volume= 0.029 af
 Outflow = 0.39 cfs @ 12.02 hrs, Volume= 0.029 af, Atten= 34%, Lag= 3.9 min
 Discarded = 0.39 cfs @ 12.02 hrs, Volume= 0.029 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 324.01' @ 12.02 hrs Surf.Area= 3,000 sf Storage= 225 cf

Plug-Flow detention time= 9.6 min calculated for 0.029 af (100% of inflow)
 Center-of-Mass det. time= 9.6 min (788.5 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	323.81'	3,673 cf	Custom Stage Data (Prismatic) Listed below 12,244 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
323.81	0	0	0
324.31	7,508	1,877	1,877
324.81	10,544	4,513	6,390
325.31	12,872	5,854	12,244

Device	Routing	Invert	Outlet Devices
#1	Secondary	324.31'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	323.81'	5.600 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.39 cfs @ 12.02 hrs HW=324.01' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.39 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=323.81' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 30P: BMP #3A (North)

Inflow Area = 0.676 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 1.08 cfs @ 11.96 hrs, Volume= 0.053 af
 Outflow = 0.70 cfs @ 12.02 hrs, Volume= 0.053 af, Atten= 36%, Lag= 4.0 min
 Discarded = 0.70 cfs @ 12.02 hrs, Volume= 0.053 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 324.19' @ 12.02 hrs Surf.Area= 5,366 sf Storage= 308 cf

Plug-Flow detention time= 2.6 min calculated for 0.053 af (100% of inflow)
 Center-of-Mass det. time= 2.6 min (781.4 - 778.8)

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

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Volume	Invert	Avail.Storage	Storage Description
#1	323.81'	3,817 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 12,725 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
323.81	0	0	0
324.31	7,012	1,753	1,753
324.81	10,985	4,499	6,252
325.31	14,904	6,472	12,725

Device	Routing	Invert	Outlet Devices
#1	Secondary	324.31'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	323.81'	5.600 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.70 cfs @ 12.02 hrs HW=324.19' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.70 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=323.81' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 31S: 2060+49 to 2062+00

Runoff = 0.22 cfs @ 11.96 hrs, Volume= 0.011 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	5,889	Pavement and infiltration stone panel
	5,889	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Direct into BMP

Summary for Pond 32P: Outlet at 2061+98.5

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 314.25' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	324.65'	12.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900

#2 Device 1 314.25' Outlet Invert= 324.45' S= 0.0050 '/' Cc= 0.900 n= 0.012
0.3" Horiz. Pipe peforations X 540.00 C= 0.600
 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=314.25' (Free Discharge)

↑**1=Culvert** (Controls 0.00 cfs)

↑**2=Pipe peforations** (Controls 0.00 cfs)

Summary for Pond 33P: BMP #3B (South)

Inflow Area =	0.135 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
Inflow =	0.22 cfs @ 11.96 hrs, Volume= 0.011 af
Outflow =	0.14 cfs @ 12.02 hrs, Volume= 0.011 af, Atten= 34%, Lag= 3.9 min
Discarded =	0.14 cfs @ 12.02 hrs, Volume= 0.011 af
Secondary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 326.27' @ 12.02 hrs Surf.Area= 1,104 sf Storage= 83 cf

Plug-Flow detention time= 9.6 min calculated for 0.011 af (100% of inflow)
 Center-of-Mass det. time= 9.6 min (788.5 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	326.17'	2,162 cf	Custom Stage Data (Prismatic) Listed below 7,205 cf Overall x 30.0% Voids
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
326.17	0	0	0
326.67	5,764	1,441	1,441
327.17	5,764	2,882	4,323
327.67	5,764	2,882	7,205

Device	Routing	Invert	Outlet Devices
#1	Secondary	326.67'	39.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	326.17'	5.600 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.14 cfs @ 12.02 hrs HW=326.27' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.14 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=326.17' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 34S: 2073+50 to 2086+80

Runoff = 1.90 cfs @ 11.96 hrs, Volume= 0.094 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	51,870	98 Pavement and infiltration stone panel
	51,870	100.00% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0				Direct Entry, Direct into BMP	

Summary for Subcatchment 35S: 2086+80 to 2089+00

Runoff = 0.31 cfs @ 11.96 hrs, Volume= 0.016 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	8,580	98 Pavement and infiltration stone panel
	8,580	100.00% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0				Direct Entry, Direct into BMP	

Summary for Pond 36P: Outlet at 2086+80

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 292.40' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	292.40'	12.0" Round Culvert L= 47.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 291.90' S= 0.0106 '/' Cc= 0.900 n= 0.012
#2	Device 1	292.90'	0.3" Horiz. Pipe perforations X 612.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=292.40' (Free Discharge)

↑1=Culvert (Controls 0.00 cfs)

↑2=Pipe perforations (Controls 0.00 cfs)

Summary for Pond 37P: BMP #4A (South)

Inflow Area = 1.191 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 1.90 cfs @ 11.96 hrs, Volume= 0.094 af
 Outflow = 0.18 cfs @ 12.36 hrs, Volume= 0.094 af, Atten= 90%, Lag= 23.9 min
 Discarded = 0.18 cfs @ 12.36 hrs, Volume= 0.094 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 294.87' @ 12.36 hrs Surf.Area= 11,327 sf Storage= 1,779 cf

Plug-Flow detention time= 97.1 min calculated for 0.094 af (100% of inflow)
 Center-of-Mass det. time= 97.1 min (875.9 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	293.82'	3,623 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 12,077 cf Overall x 30.0% Voids
<hr/>			
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
293.82	0	0	0
294.90	11,684	6,309	6,309
295.32	15,779	5,767	12,077
Device	Routing	Invert	Outlet Devices
#1	Secondary	294.90'	39.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	293.82'	0.700 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.18 cfs @ 12.36 hrs HW=294.87' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.18 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=293.82' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 38P: BMP #4A (North)

Inflow Area = 0.197 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 0.31 cfs @ 11.96 hrs, Volume= 0.016 af
 Outflow = 0.07 cfs @ 12.09 hrs, Volume= 0.016 af, Atten= 77%, Lag= 8.0 min
 Discarded = 0.07 cfs @ 12.09 hrs, Volume= 0.016 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 294.14' @ 12.09 hrs Surf.Area= 4,483 sf Storage= 217 cf

Plug-Flow detention time= 23.5 min calculated for 0.016 af (100% of inflow)
 Center-of-Mass det. time= 23.5 min (802.3 - 778.8)

14747 Infiltration BMPs WQV

Prepared by Jacobs

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Type II 24-hr WQV Rainfall=1.16"

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Volume	Invert	Avail.Storage	Storage Description
#1	293.82'	2,961 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 9,869 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
293.82	0	0	0
294.32	6,954	1,739	1,739
294.82	8,522	3,869	5,608
295.32	8,522	4,261	9,869

Device	Routing	Invert	Outlet Devices
#1	Secondary	294.32'	39.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	293.82'	0.700 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.07 cfs @ 12.09 hrs HW=294.14' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.07 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=293.82' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 39S: 2091+60 to 2099+10

Runoff = 1.09 cfs @ 11.96 hrs, Volume= 0.054 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	29,721	98 Pavement and infiltration stone panel
	29,721	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Direct into BMP

Summary for Pond 40P: Outlet at 2091+61.5

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 293.80' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	293.80'	15.0" Round Culvert L= 51.0' CPP, projecting, no headwall, Ke= 0.900

#2 Device 1 294.62' Outlet Invert= 293.30' S= 0.0098 '/' Cc= 0.900 n= 0.012
0.3" Horiz. Pipe perforations X 432.00 C= 0.600
 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=293.80' (Free Discharge)

↑
 1=Culvert (Controls 0.00 cfs)

↑
 2=Pipe perforations (Controls 0.00 cfs)

Summary for Pond 41P: BMP #5A (North)

Inflow Area =	0.682 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
Inflow =	1.09 cfs @ 11.96 hrs, Volume= 0.054 af
Outflow =	0.27 cfs @ 12.08 hrs, Volume= 0.054 af, Atten= 75%, Lag= 7.6 min
Discarded =	0.27 cfs @ 12.08 hrs, Volume= 0.054 af
Secondary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 296.03' @ 12.08 hrs Surf.Area= 6,955 sf Storage= 723 cf

Plug-Flow detention time= 20.2 min calculated for 0.054 af (100% of inflow)
 Center-of-Mass det. time= 20.2 min (799.0 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	295.34'	3,445 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 11,485 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
295.34	0	0	0
296.17	8,330	3,457	3,457
296.34	10,249	1,579	5,036
296.84	15,545	6,449	11,485

Device	Routing	Invert	Outlet Devices
#1	Secondary	296.17'	39.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	295.34'	1.700 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.27 cfs @ 12.08 hrs HW=296.03' (Free Discharge)

↑
 2=Exfiltration (Exfiltration Controls 0.27 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=295.34' (Free Discharge)

↑
 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 42S: 2099+10 to 2103+90

Runoff = 0.70 cfs @ 11.96 hrs, Volume= 0.035 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	19,200	98 Pavement and infiltration stone panel
	19,200	100.00% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0	Direct Entry, Direct into BMP				

Summary for Subcatchment 43S: 2103+90 to 2105+40

Runoff = 0.22 cfs @ 11.96 hrs, Volume= 0.011 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	6,000	98 Pavement and infiltration stone panel
	6,000	100.00% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0	Direct Entry, Direct into BMP				

Summary for Pond 44P: Outlet at 2103+90

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 292.90' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	294.00'	15.0" Round Culvert L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 293.50' S= 0.0132 '/' Cc= 0.900 n= 0.012
#2	Device 1	292.90'	0.3" Horiz. Pipe perforations X 612.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=292.90' (Free Discharge)

↑1=Culvert (Controls 0.00 cfs)

↑2=Pipe perforations (Controls 0.00 cfs)

Summary for Pond 45P: BMP #5B (South)

Inflow Area = 0.441 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 0.70 cfs @ 11.96 hrs, Volume= 0.035 af
 Outflow = 0.25 cfs @ 12.06 hrs, Volume= 0.035 af, Atten= 64%, Lag= 6.2 min
 Discarded = 0.25 cfs @ 12.06 hrs, Volume= 0.035 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 297.19' @ 12.06 hrs Surf.Area= 6,437 sf Storage= 382 cf

Plug-Flow detention time= 10.5 min calculated for 0.035 af (100% of inflow)
 Center-of-Mass det. time= 10.5 min (789.3 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	296.79'	4,877 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 16,255 cf Overall x 30.0% Voids
<hr/>			
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
296.79	0	0	0
297.29	8,136	2,034	2,034
297.79	14,800	5,734	7,768
298.29	19,148	8,487	16,255
<hr/>			
Device	Routing	Invert	Outlet Devices
#1	Secondary	297.29'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	296.79'	1.700 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.25 cfs @ 12.06 hrs HW=297.19' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.25 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=296.79' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 46P: BMP #5B (North)

Inflow Area = 0.138 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 0.22 cfs @ 11.96 hrs, Volume= 0.011 af
 Outflow = 0.11 cfs @ 12.04 hrs, Volume= 0.011 af, Atten= 51%, Lag= 5.2 min
 Discarded = 0.11 cfs @ 12.04 hrs, Volume= 0.011 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 297.02' @ 12.04 hrs Surf.Area= 2,712 sf Storage= 93 cf

Plug-Flow detention time= 5.7 min calculated for 0.011 af (100% of inflow)
 Center-of-Mass det. time= 5.7 min (784.5 - 778.8)

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

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Volume	Invert	Avail.Storage	Storage Description
#1	296.79'	2,228 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 7,425 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
296.79	0	0	0
297.29	5,940	1,485	1,485
297.79	5,940	2,970	4,455
298.29	5,940	2,970	7,425

Device	Routing	Invert	Outlet Devices
#1	Secondary	297.29'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	296.79'	1.700 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.11 cfs @ 12.04 hrs HW=297.02' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.11 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=296.79' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 47S: 2105+95 to 2108+68

Runoff = 0.40 cfs @ 11.96 hrs, Volume= 0.020 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	10,920	Pavement and infiltration stone panel
	10,920	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Direct into BMP

Summary for Pond 48P: Outlet at 2105+96.5

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 319.00' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	319.00'	15.0" Round Culvert L= 46.0' CPP, projecting, no headwall, Ke= 0.900

#2 Device 1 320.35' Outlet Invert= 318.00' S= 0.0217 '/' Cc= 0.900 n= 0.012
0.3" Horiz. Pipe perforations X 540.00 C= 0.600
 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=319.00' (Free Discharge)

↑**1=Culvert** (Controls 0.00 cfs)

↑**2=Pipe perforations** (Controls 0.00 cfs)

Summary for Pond 49P: BMP #6A (North)

Inflow Area =	0.251 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
Inflow =	0.40 cfs @ 11.96 hrs, Volume= 0.020 af
Outflow =	0.16 cfs @ 12.05 hrs, Volume= 0.020 af, Atten= 59%, Lag= 5.8 min
Discarded =	0.16 cfs @ 12.05 hrs, Volume= 0.020 af
Secondary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 297.55' @ 12.05 hrs Surf.Area= 4,184 sf Storage= 197 cf

Plug-Flow detention time= 8.1 min calculated for 0.020 af (100% of inflow)
 Center-of-Mass det. time= 8.1 min (786.9 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	297.24'	3,435 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 11,449 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
297.24	0	0	0
297.74	6,668	1,667	1,667
298.24	10,820	4,372	6,039
298.74	10,820	5,410	11,449

Device	Routing	Invert	Outlet Devices
#1	Secondary	297.74'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	297.24'	1.700 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.16 cfs @ 12.05 hrs HW=297.55' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.16 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=297.24' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 50S: 2108+68 to 2114+40

Runoff = 0.84 cfs @ 11.96 hrs, Volume= 0.041 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	22,880	98 Pavement and infiltration stone panel
	22,880	100.00% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0	Direct Entry, Direct into BMP				

Summary for Subcatchment 51S: 2114+40 to 2121+61

Runoff = 1.06 cfs @ 11.96 hrs, Volume= 0.052 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	28,840	98 Pavement and infiltration stone panel
	28,840	100.00% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0	Direct Entry, Direct into BMP				

Summary for Pond 52P: Outlet at 2114+40

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 292.90' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	294.00'	15.0" Round Culvert L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 293.50' S= 0.0132 '/' Cc= 0.900 n= 0.012
#2	Device 1	292.90'	0.3" Horiz. Pipe perforations X 612.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=292.90' (Free Discharge)

↑1=Culvert (Controls 0.00 cfs)

↑2=Pipe perforations (Controls 0.00 cfs)

Summary for Pond 53P: BMP #6B (South)

Inflow Area = 0.525 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 0.84 cfs @ 11.96 hrs, Volume= 0.041 af
 Outflow = 0.25 cfs @ 12.07 hrs, Volume= 0.041 af, Atten= 70%, Lag= 7.0 min
 Discarded = 0.25 cfs @ 12.07 hrs, Volume= 0.041 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 296.25' @ 12.07 hrs Surf.Area= 6,297 sf Storage= 513 cf

Plug-Flow detention time= 15.2 min calculated for 0.041 af (100% of inflow)
 Center-of-Mass det. time= 15.2 min (794.0 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	295.71'	3,558 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 11,861 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
295.71	0	0	0
296.38	7,768	2,602	2,602
296.71	10,492	3,013	5,615
297.21	14,492	6,246	11,861

Device	Routing	Invert	Outlet Devices
#1	Secondary	296.37'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	295.71'	1.700 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.25 cfs @ 12.07 hrs HW=296.25' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.25 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=295.71' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 54P: BMP #6B (North)

Inflow Area = 0.662 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 1.06 cfs @ 11.96 hrs, Volume= 0.052 af
 Outflow = 0.30 cfs @ 12.08 hrs, Volume= 0.052 af, Atten= 72%, Lag= 7.2 min
 Discarded = 0.30 cfs @ 12.08 hrs, Volume= 0.052 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 296.30' @ 12.08 hrs Surf.Area= 7,528 sf Storage= 665 cf

Plug-Flow detention time= 16.7 min calculated for 0.052 af (100% of inflow)
 Center-of-Mass det. time= 16.7 min (795.5 - 778.8)

14747 Infiltration BMPs WQV

Prepared by Jacobs

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Type II 24-hr WQV Rainfall=1.16"

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Volume	Invert	Avail.Storage	Storage Description
#1	295.71'	3,849 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 12,830 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
295.71	0	0	0
296.38	8,564	2,869	2,869
296.71	11,284	3,275	6,144
297.21	15,460	6,686	12,830

Device	Routing	Invert	Outlet Devices
#1	Secondary	296.37'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	295.71'	1.700 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.30 cfs @ 12.08 hrs HW=296.30' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.30 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=295.71' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Subcatchment 55S: 2121+61 to 2128+18

Runoff = 0.95 cfs @ 11.96 hrs, Volume= 0.047 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	25,798	98 Pavement and infiltration stone panel
	25,798	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Direct into BMP

Summary for Subcatchment 56S: 2128+18 to 2130+00

Runoff = 0.27 cfs @ 11.96 hrs, Volume= 0.013 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type II 24-hr WQV Rainfall=1.16"

Area (sf)	CN	Description
*	7,262	98 Pavement and infiltration stone panel
	7,262	100.00% Impervious Area

14747 Infiltration BMPs WQV

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Type II 24-hr WQV Rainfall=1.16"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry, Direct into BMP				

Summary for Pond 57P: Outlet at 2128+18

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 292.90' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	294.00'	15.0" Round Culvert L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 293.50' S= 0.0132 ' Cc= 0.900 n= 0.012
#2	Device 1	292.90'	0.3" Horiz. Pipe perforations X 612.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=292.90' (Free Discharge)

1=Culvert (Controls 0.00 cfs)

2=Pipe perforations (Controls 0.00 cfs)

Summary for Pond 58P: BMP #6C (South)

Inflow Area = 0.592 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 0.95 cfs @ 11.96 hrs, Volume= 0.047 af
 Outflow = 0.26 cfs @ 12.08 hrs, Volume= 0.047 af, Atten= 73%, Lag= 7.3 min
 Discarded = 0.26 cfs @ 12.08 hrs, Volume= 0.047 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 296.48' @ 12.08 hrs Surf.Area= 6,509 sf Storage= 605 cf

Plug-Flow detention time= 17.7 min calculated for 0.047 af (100% of inflow)

Center-of-Mass det. time= 17.7 min (796.5 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	295.86'	3,280 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 10,935 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
295.86	0	0	0
296.53	7,036	2,357	2,357
296.86	9,687	2,759	5,116
297.36	13,587	5,819	10,935

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

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Device	Routing	Invert	Outlet Devices
#1	Secondary	296.52'	39.1' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	295.86'	1.700 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.26 cfs @ 12.08 hrs HW=296.48' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.26 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=295.86' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 59P: BMP #6C (North)

Inflow Area = 0.167 ac, 100.00% Impervious, Inflow Depth = 0.95" for WQV event
 Inflow = 0.27 cfs @ 11.96 hrs, Volume= 0.013 af
 Outflow = 0.07 cfs @ 12.08 hrs, Volume= 0.013 af, Atten= 75%, Lag= 7.7 min
 Discarded = 0.07 cfs @ 12.08 hrs, Volume= 0.013 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 296.15' @ 12.08 hrs Surf.Area= 4,068 sf Storage= 178 cf

Plug-Flow detention time= 20.9 min calculated for 0.013 af (100% of inflow)
 Center-of-Mass det. time= 20.9 min (799.7 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	295.86'	2,617 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 8,724 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
295.86	0	0	0
296.36	6,979	1,745	1,745
296.86	6,979	3,490	5,234
297.36	6,979	3,490	8,724

Device	Routing	Invert	Outlet Devices
#1	Secondary	297.29'	40.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	295.86'	0.700 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.07 cfs @ 12.08 hrs HW=296.15' (Free Discharge)
 ↑ 2=Exfiltration (Exfiltration Controls 0.07 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=295.86' (Free Discharge)
 ↑ 1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

ATTACHMENT B:

**INFILTRATION PRACTICE DESIGN CRITERIA
(NHDES WORKSHEETS)**

HYDROCAD STAGE-STORAGE TABLES FOR INFILTRATION BMPS

HYDROCAD HYDROGRAPH TABLES FOR INFILTRATION BMPS



2 EXECUTIVE PARK DRIVE
BEDFORD, NH
603-666-7181

JOB NO. 14747 - Walpole/Charleston NH 12
SHEET NO. 1 OF 1
CALCULATED BY: JRB DATE: 7/17/2017
CHECKED BY: RRP DATE: 7/18/2017

Infiltration BMP - HydroCAD model

The following table is provided to correlate the Infiltration Practice Design worksheets with the HydroCAD model.

Infiltration Practice Node Name	HydroCAD Model Node Description		
	Subcatchment (Contributing Area)	Pond with Storage (BMP at each dam)	Pond without Storage (Transverse Drain Outlet Pipe)
Infiltration BMP #1A	1S: Sta. 2012+25 to 2013+18	4P: BMP #1A South	3P: Outlet at 2013+18
	2S: Sta. 2013+18 to 2020+50	5P: BMP #1A North	
Infiltration BMP #1B	11S: Sta. 2020+50 to 2022+54.5	14P: BMP #1B (South)	13P: Outlet at 2022+54.5
Infiltration BMP #2A	17S: Sta. 2025+05 to 2028+82	20P: BMP #2A North	18P: Outlet at 2025+05
Infiltration BMP #2B	21S: Sta. 2028+82 to 2033+31	24P: BMP #2B South	23P: Outlet at 2033+31
	22S: Sta. 2033+31 to 2039+00	25P: BMP #2B North	
Infiltration BMP #3A	26S: Sta. 2049+00 to 2053+00	29P: BMP #3A South	28P: Outlet at 2053+00
	27S: Sta. 2053+00 to 2060+49	30P: BMP #3A North	
Infiltration BMP #3B	31S: Sta. 2060+49 to 2062+00	33P: BMP #3B South	32P: Outlet at 2061+98.5
Infiltration BMP #4A	34S: Sta. 2073+50 to 2086+80	37P: BMP #4a South	36P: Outlet at 2086+80
	35S: Sta. 2086+80 to 2089+00	38P: BMP #4A North	
Infiltration BMP #5A	39S: Sta. 2091+60 to 2099+10	41P: BMP #5A North	40P: Outlet at 2091+61.5
Infiltration BMP #5B	42S: Sta. 2099+10 to 2103+90	45P: BMP #5B South	44P: Outlet at 2103+90
	43S: Sta. 2103+90 to 2105+40	46P: BMP #5B North	
Infiltration BMP #6A	47S: Sta. 2105+95 to 2108+68	49P: BMP #6A North	48P: Outlet at 2105+96.5
Infiltration BMP #6B	50S: Sta. 2108+68 to 2114+40	53P: BMP #6B South	52P: Outlet at 2114+40
	51S: Sta. 2114+40 to 2121+61	54P: BMP #6B North	
Infiltration BMP #6C	55S: Sta. 2121+61 to 2128+18	58P: BMP #6C South	57P: Outlet at 2128+28
	56S Sta. 2128+18 to 2130+00	59P: BMP #6C North	

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration BMP #1A (Sta. 2012+25 to Sta. 2020+50)**

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes	Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
0.76 ac	A = Area draining to the practice	
0.76 ac	A_I = Impervious area draining to the practice	
1.00 decimal	I = percent impervious area draining to the practice, in decimal form	
0.95 unitless	$Rv = \text{Runoff coefficient} = 0.05 + (0.9 \times I)$	
0.72 ac-in	$WQV = 1'' \times Rv \times A$	
2,621 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
655 cf	25% x WQV (check calc for sediment forebay volume)	
<u>None</u>	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V_{SED} = sediment forebay volume, if used for pretreatment	$\leftarrow \geq 25\%WQV$
379 cf	V = volume ¹ (attach a stage-storage table)	$\leftarrow \geq WQV$
5,884 sf	A_{SA} = surface area of the bottom of the pond	
5.60 iph	I_{DESIGN} = design infiltration rate ²	
0.1 hours	$T_{DRAIN} = \text{drain time} = V / (A_{SA} * I_{DESIGN})$	$\leftarrow \leq 72\text{-hrs}$
316.60 feet	E_{BTM} = elevation of the bottom of the practice	
291.00 feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
260.00 feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
25.60 feet	D_{SHWT} = separation from SHWT ³	$\leftarrow \geq *^3$
56.6 feet	D_{ROCK} = separation from bedrock ³	$\leftarrow \geq *^3$
ft	D_T = depth of trench, if trench proposed	$\leftarrow 4 - 10\text{ ft}$
No Yes/No	If a trench or underground system is proposed, observation well provided	
Stone	If a trench is proposed, material in trench	
N/A	If a basin is proposed, basin floor material	
N/A Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
N/A :1	If a basin is proposed, pond side slopes	$\leftarrow \geq 3:1$
317.17 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
317.36 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
318.10 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation \leq Elevation of the top of the trench?	$\leftarrow \text{yes}$
YES	If a basin is proposed, 50-year peak elevation \leq Elevation of berm?	$\leftarrow \text{yes}$

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Peak elevations for the 10 year and 50 year storm events assume infiltration is no longer occurring and stormwater within the BMP is flowing to the transverse drains at the low points.

Infiltration rates were determined from NRCS Ksat values for the soil type.

Bedrock elevation is below the cross section grid. The lowest elevation on the grid was entered.

SHWT elevation represents OHW of the Connecticut River. There is no nearby subsurface data.

Stage-Area-Storage for Pond 4P: BMP #1A (South)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
316.60	0	0	317.14	3,369	293
316.61	67	5	317.15	3,376	303
316.62	134	10	317.16	3,382	314
316.63	201	15	317.17	3,388	324
316.64	268	20	317.18	3,395	335
316.65	334	25	317.19	3,401	345
316.66	401	30	317.20	3,407	356
316.67	468	35	317.21	3,414	366
316.68	535	40	317.22	3,420	377
316.69	602	45	317.23	3,426	387
Max. El. of WQV in BMP #1A South Cell	316.70	669	317.24	3,432	398
316.71	736	55	317.25	3,439	408
316.72	803	60	317.26	3,445	419
316.73	869	65	317.27	3,451	429
316.74	936	70	317.28	3,458	440
316.75	1,003	75	317.29	3,464	450
316.76	1,070	80	317.30	3,470	461
316.77	1,137	85	317.31	3,477	471
316.78	1,204	90	317.32	3,483	482
316.79	1,271	95	317.33	3,489	492
316.80	1,338	100	317.34	3,496	503
316.81	1,404	105	317.35	3,502	513
316.82	1,471	110	317.36	3,508	524
316.83	1,538	115	317.37	3,515	534
316.84	1,605	120	317.38	3,521	545
316.85	1,672	125	317.39	3,527	555
316.86	1,739	130	317.40	3,534	566
316.87	1,806	135	317.41	3,540	576
316.88	1,873	140	317.42	3,546	587
316.89	1,940	145	317.43	3,553	597
316.90	2,006	150	317.44	3,559	608
316.91	2,073	155	317.45	3,565	619
316.92	2,140	161	317.46	3,572	629
316.93	2,207	166	317.47	3,578	640
316.94	2,274	171	317.48	3,584	650
316.95	2,341	176	317.49	3,590	661
316.96	2,408	181	317.50	3,597	671
316.97	2,475	186	317.51	3,603	682
316.98	2,541	191	317.52	3,609	692
316.99	2,608	196	317.53	3,616	703
317.00	2,675	201	317.54	3,622	713
317.01	2,742	206	317.55	3,628	724
317.02	2,809	211	317.56	3,635	734
317.03	2,876	216	317.57	3,641	745
317.04	2,943	221	317.58	3,647	755
317.05	3,010	226	317.59	3,654	766
317.06	3,076	231	317.60	3,660	776
317.07	3,143	236	317.61	3,660	787
317.08	3,210	241	317.62	3,660	798
317.09	3,277	246	317.63	3,660	809
Top of Dam El.	317.10	3,344	317.64	3,660	820
317.11	3,350	261	317.65	3,660	831
317.12	3,357	272	317.66	3,660	842
317.13	3,363	282	317.67	3,660	853

Stage-Area-Storage for Pond 4P: BMP #1A (South) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
317.68	3,660	864
317.69	3,660	875
317.70	3,660	886
317.71	3,660	897
317.72	3,660	908
317.73	3,660	919
317.74	3,660	930
317.75	3,660	941
317.76	3,660	952
317.77	3,660	963
317.78	3,660	974
317.79	3,660	985
317.80	3,660	996
317.81	3,660	1,007
317.82	3,660	1,018
317.83	3,660	1,029
317.84	3,660	1,040
317.85	3,660	1,051
317.86	3,660	1,062
317.87	3,660	1,073
317.88	3,660	1,084
317.89	3,660	1,095
317.90	3,660	1,106
317.91	3,660	1,116
317.92	3,660	1,127
317.93	3,660	1,138
317.94	3,660	1,149
317.95	3,660	1,160
317.96	3,660	1,171
317.97	3,660	1,182
317.98	3,660	1,193
317.99	3,660	1,204
318.00	3,660	1,215
318.01	3,660	1,226
318.02	3,660	1,237
318.03	3,660	1,248
318.04	3,660	1,259
318.05	3,660	1,270
318.06	3,660	1,281
318.07	3,660	1,292
318.08	3,660	1,303
318.09	3,660	1,314
318.10	3,660	1,325

Stage-Area-Storage for Pond 5P: BMP #1A (North)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
316.60	0	0	317.14	6,575	542
316.61	124	0	317.15	6,667	562
316.62	248	1	317.16	6,759	582
316.63	372	2	317.17	6,851	603
316.64	497	3	317.18	6,943	623
316.65	621	5	317.19	7,035	644
316.66	745	7	317.20	7,126	666
316.67	869	9	317.21	7,218	687
316.68	993	12	317.22	7,310	709
316.69	1,117	15	317.23	7,402	731
316.70	1,242	19	317.24	7,494	753
316.71	1,366	23	317.25	7,586	776
316.72	1,490	27	317.26	7,677	799
316.73	1,614	31	317.27	7,769	822
316.74	1,738	37	317.28	7,861	845
316.75	1,862	42	317.29	7,953	869
316.76	1,987	48	317.30	8,045	893
316.77	2,111	54	317.31	8,137	917
316.78	2,235	60	317.32	8,228	942
316.79	2,359	67	317.33	8,320	967
316.80	2,483	74	317.34	8,412	992
316.81	2,607	82	317.35	8,504	1,017
316.82	2,732	90	317.36	8,596	1,043
316.83	2,856	99	317.37	8,688	1,069
316.84	2,980	107	317.38	8,780	1,095
316.85	3,104	116	317.39	8,871	1,122
316.86	3,228	126	317.40	8,963	1,148
316.87	3,352	136	317.41	9,055	1,175
316.88	3,476	146	317.42	9,147	1,203
316.89	3,601	157	317.43	9,239	1,230
316.90	3,725	168	317.44	9,331	1,258
316.91	3,849	179	317.45	9,422	1,286
316.92	3,973	191	317.46	9,514	1,315
316.93	4,097	203	317.47	9,606	1,343
316.94	4,221	215	317.48	9,698	1,372
316.95	4,346	228	317.49	9,790	1,401
316.96	4,470	241	317.50	9,882	1,431
316.97	4,594	255	317.51	9,973	1,461
316.98	4,718	269	317.52	10,065	1,491
316.99	4,842	283	317.53	10,157	1,521
317.00	4,966	298	317.54	10,249	1,552
317.01	5,091	313	317.55	10,341	1,583
317.02	5,215	329	317.56	10,433	1,614
317.03	5,339	344	317.57	10,524	1,645
317.04	5,463	361	317.58	10,616	1,677
317.05	5,587	377	317.59	10,708	1,709
317.06	5,711	394	317.60	10,800	1,741
317.07	5,836	411	317.61	10,880	1,774
317.08	5,960	429	317.62	10,960	1,806
317.09	6,084	447	317.63	11,040	1,839
317.10	6,208	466	317.64	11,120	1,873
317.11	6,300	484	317.65	11,200	1,906
317.12	6,392	503	317.66	11,280	1,940
317.13	6,484	523	317.67	11,360	1,974

**Max. El. of
WQV in
BMP #1A
North Cell**

**Top of
Dam El.**

Stage-Area-Storage for Pond 5P: BMP #1A (North) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
317.68	11,440	2,008
317.69	11,520	2,043
317.70	11,600	2,077
317.71	11,680	2,112
317.72	11,760	2,147
317.73	11,840	2,183
317.74	11,920	2,218
317.75	12,000	2,254
317.76	12,080	2,290
317.77	12,160	2,327
317.78	12,240	2,363
317.79	12,320	2,400
317.80	12,400	2,437
317.81	12,480	2,475
317.82	12,560	2,512
317.83	12,640	2,550
317.84	12,720	2,588
317.85	12,800	2,626
317.86	12,880	2,665
317.87	12,960	2,703
317.88	13,040	2,742
317.89	13,120	2,782
317.90	13,200	2,821
317.91	13,280	2,861
317.92	13,360	2,901
317.93	13,440	2,941
317.94	13,520	2,982
317.95	13,600	3,022
317.96	13,680	3,063
317.97	13,760	3,104
317.98	13,840	3,146
317.99	13,920	3,187
318.00	14,000	3,229
318.01	14,080	3,271
318.02	14,160	3,314
318.03	14,240	3,356
318.04	14,320	3,399
318.05	14,400	3,442
318.06	14,480	3,486
318.07	14,560	3,529
318.08	14,640	3,573
318.09	14,720	3,617
318.10	14,800	3,661

Hydrograph for Pond 4P: BMP #1A (South)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.00	0	316.60	0.00	0.00	0.00
10.05	0.00	1	316.60	0.00	0.00	0.00
10.10	0.00	1	316.60	0.00	0.00	0.00
10.15	0.00	1	316.60	0.00	0.00	0.00
10.20	0.00	1	316.60	0.00	0.00	0.00
10.25	0.00	1	316.60	0.00	0.00	0.00
10.30	0.00	2	316.60	0.00	0.00	0.00
10.35	0.00	2	316.60	0.00	0.00	0.00
10.40	0.00	2	316.60	0.00	0.00	0.00
10.45	0.00	2	316.60	0.00	0.00	0.00
10.50	0.00	2	316.60	0.00	0.00	0.00
10.55	0.00	2	316.60	0.00	0.00	0.00
10.60	0.00	2	316.60	0.00	0.00	0.00
10.65	0.00	2	316.60	0.00	0.00	0.00
10.70	0.00	2	316.60	0.00	0.00	0.00
10.75	0.00	2	316.60	0.00	0.00	0.00
10.80	0.00	2	316.60	0.00	0.00	0.00
10.85	0.00	2	316.60	0.00	0.00	0.00
10.90	0.00	3	316.61	0.00	0.00	0.00
10.95	0.01	3	316.61	0.00	0.00	0.00
11.00	0.01	3	316.61	0.00	0.00	0.00
11.05	0.01	3	316.61	0.00	0.00	0.00
11.10	0.01	3	316.61	0.01	0.01	0.00
11.15	0.01	3	316.61	0.01	0.01	0.00
11.20	0.01	3	316.61	0.01	0.01	0.00
11.25	0.01	3	316.61	0.01	0.01	0.00
11.30	0.01	4	316.61	0.01	0.01	0.00
11.35	0.01	4	316.61	0.01	0.01	0.00
11.40	0.01	4	316.61	0.01	0.01	0.00
11.45	0.01	4	316.61	0.01	0.01	0.00
11.50	0.01	5	316.61	0.01	0.01	0.00
11.55	0.01	5	316.61	0.01	0.01	0.00
11.60	0.02	6	316.61	0.01	0.01	0.00
11.65	0.02	7	316.61	0.01	0.01	0.00
11.70	0.04	10	316.62	0.02	0.02	0.00
11.75	0.05	14	316.63	0.02	0.02	0.00
11.80	0.06	18	316.64	0.03	0.03	0.00
11.85	0.08	24	316.65	0.04	0.04	0.00
11.90	0.11	32	316.66	0.06	0.06	0.00
11.95	0.13	43	316.68	0.07	0.07	0.00
12.00	0.11	50	316.70	0.09	0.09	0.00
12.05	0.06	50	316.70	0.09	0.09	0.00
12.10	0.03	44	316.69	0.08	0.08	0.00
12.15	0.02	36	316.67	0.06	0.06	0.00
12.20	0.02	29	316.66	0.05	0.05	0.00
12.25	0.02	24	316.65	0.04	0.04	0.00
12.30	0.01	20	316.64	0.03	0.03	0.00
12.35	0.01	16	316.63	0.03	0.03	0.00
12.40	0.01	14	316.63	0.02	0.02	0.00
12.45	0.01	12	316.62	0.02	0.02	0.00
12.50	0.01	10	316.62	0.02	0.02	0.00
12.55	0.01	9	316.62	0.02	0.02	0.00
12.60	0.01	8	316.62	0.01	0.01	0.00
12.65	0.01	7	316.61	0.01	0.01	0.00

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

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Hydrograph for Pond 4P: BMP #1A (South) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.01	6	316.61	0.01	0.01	0.00
12.75	0.01	6	316.61	0.01	0.01	0.00
12.80	0.01	5	316.61	0.01	0.01	0.00
12.85	0.01	5	316.61	0.01	0.01	0.00
12.90	0.01	5	316.61	0.01	0.01	0.00
12.95	0.01	5	316.61	0.01	0.01	0.00
13.00	0.01	4	316.61	0.01	0.01	0.00
13.05	0.01	4	316.61	0.01	0.01	0.00
13.10	0.01	4	316.61	0.01	0.01	0.00
13.15	0.01	4	316.61	0.01	0.01	0.00
13.20	0.01	4	316.61	0.01	0.01	0.00
13.25	0.01	3	316.61	0.01	0.01	0.00
13.30	0.01	3	316.61	0.01	0.01	0.00
13.35	0.01	3	316.61	0.01	0.01	0.00
13.40	0.01	3	316.61	0.01	0.01	0.00
13.45	0.00	3	316.61	0.01	0.01	0.00
13.50	0.00	3	316.61	0.01	0.01	0.00
13.55	0.00	3	316.61	0.01	0.01	0.00
13.60	0.00	3	316.61	0.00	0.00	0.00
13.65	0.00	3	316.61	0.00	0.00	0.00
13.70	0.00	3	316.61	0.00	0.00	0.00
13.75	0.00	3	316.61	0.00	0.00	0.00
13.80	0.00	3	316.61	0.00	0.00	0.00
13.85	0.00	3	316.61	0.00	0.00	0.00
13.90	0.00	2	316.60	0.00	0.00	0.00
13.95	0.00	2	316.60	0.00	0.00	0.00
14.00	0.00	2	316.60	0.00	0.00	0.00
14.05	0.00	2	316.60	0.00	0.00	0.00
14.10	0.00	2	316.60	0.00	0.00	0.00
14.15	0.00	2	316.60	0.00	0.00	0.00
14.20	0.00	2	316.60	0.00	0.00	0.00
14.25	0.00	2	316.60	0.00	0.00	0.00
14.30	0.00	2	316.60	0.00	0.00	0.00
14.35	0.00	2	316.60	0.00	0.00	0.00
14.40	0.00	2	316.60	0.00	0.00	0.00
14.45	0.00	2	316.60	0.00	0.00	0.00
14.50	0.00	2	316.60	0.00	0.00	0.00
14.55	0.00	2	316.60	0.00	0.00	0.00
14.60	0.00	2	316.60	0.00	0.00	0.00
14.65	0.00	2	316.60	0.00	0.00	0.00
14.70	0.00	2	316.60	0.00	0.00	0.00
14.75	0.00	2	316.60	0.00	0.00	0.00
14.80	0.00	2	316.60	0.00	0.00	0.00
14.85	0.00	2	316.60	0.00	0.00	0.00
14.90	0.00	2	316.60	0.00	0.00	0.00
14.95	0.00	2	316.60	0.00	0.00	0.00
15.00	0.00	2	316.60	0.00	0.00	0.00

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

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Hydrograph for Pond 5P: BMP #1A (North)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.02	0	316.61	0.02	0.02	0.00
10.05	0.02	0	316.61	0.02	0.02	0.00
10.10	0.02	0	316.61	0.02	0.02	0.00
10.15	0.02	0	316.62	0.02	0.02	0.00
10.20	0.02	0	316.61	0.02	0.02	0.00
10.25	0.02	0	316.62	0.02	0.02	0.00
10.30	0.03	0	316.62	0.03	0.03	0.00
10.35	0.03	1	316.62	0.03	0.03	0.00
10.40	0.03	1	316.62	0.03	0.03	0.00
10.45	0.03	1	316.62	0.03	0.03	0.00
10.50	0.03	1	316.62	0.03	0.03	0.00
10.55	0.03	1	316.62	0.03	0.03	0.00
10.60	0.03	1	316.62	0.03	0.03	0.00
10.65	0.03	1	316.62	0.03	0.03	0.00
10.70	0.03	1	316.62	0.03	0.03	0.00
10.75	0.03	1	316.62	0.03	0.03	0.00
10.80	0.04	1	316.62	0.04	0.04	0.00
10.85	0.04	1	316.62	0.04	0.04	0.00
10.90	0.04	1	316.62	0.04	0.04	0.00
10.95	0.04	1	316.62	0.04	0.04	0.00
11.00	0.04	1	316.63	0.04	0.04	0.00
11.05	0.04	1	316.63	0.04	0.04	0.00
11.10	0.05	2	316.63	0.05	0.05	0.00
11.15	0.05	2	316.63	0.05	0.05	0.00
11.20	0.05	2	316.63	0.05	0.05	0.00
11.25	0.06	2	316.63	0.05	0.05	0.00
11.30	0.06	2	316.64	0.06	0.06	0.00
11.35	0.06	3	316.64	0.06	0.06	0.00
11.40	0.07	3	316.64	0.06	0.06	0.00
11.45	0.07	3	316.64	0.07	0.07	0.00
11.50	0.07	4	316.64	0.07	0.07	0.00
11.55	0.08	4	316.65	0.08	0.08	0.00
11.60	0.13	7	316.66	0.10	0.10	0.00
11.65	0.20	14	316.69	0.14	0.14	0.00
11.70	0.28	27	316.72	0.19	0.19	0.00
11.75	0.36	44	316.75	0.25	0.25	0.00
11.80	0.46	68	316.79	0.31	0.31	0.00
11.85	0.63	105	316.84	0.38	0.38	0.00
11.90	0.86	162	316.89	0.47	0.47	0.00
11.95	1.05	239	316.96	0.58	0.58	0.00
12.00	0.88	303	317.00	0.65	0.65	0.00
12.05	0.47	308	317.01	0.65	0.65	0.00
12.10	0.23	258	316.97	0.60	0.60	0.00
12.15	0.16	192	316.92	0.52	0.52	0.00
12.20	0.13	133	316.87	0.43	0.43	0.00
12.25	0.12	86	316.81	0.35	0.35	0.00
12.30	0.11	52	316.77	0.27	0.27	0.00
12.35	0.10	29	316.72	0.20	0.20	0.00
12.40	0.10	16	316.69	0.15	0.15	0.00
12.45	0.09	9	316.67	0.11	0.11	0.00
12.50	0.08	6	316.66	0.09	0.09	0.00
12.55	0.07	4	316.65	0.08	0.08	0.00
12.60	0.07	3	316.64	0.07	0.07	0.00
12.65	0.06	3	316.64	0.06	0.06	0.00

Hydrograph for Pond 5P: BMP #1A (North) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.06	3	316.64	0.06	0.06	0.00
12.75	0.06	3	316.64	0.06	0.06	0.00
12.80	0.06	3	316.64	0.06	0.06	0.00
12.85	0.06	2	316.63	0.06	0.06	0.00
12.90	0.05	2	316.63	0.05	0.05	0.00
12.95	0.05	2	316.63	0.05	0.05	0.00
13.00	0.05	2	316.63	0.05	0.05	0.00
13.05	0.05	2	316.63	0.05	0.05	0.00
13.10	0.05	2	316.63	0.05	0.05	0.00
13.15	0.04	2	316.63	0.05	0.05	0.00
13.20	0.04	1	316.63	0.04	0.04	0.00
13.25	0.04	1	316.63	0.04	0.04	0.00
13.30	0.04	1	316.63	0.04	0.04	0.00
13.35	0.04	1	316.63	0.04	0.04	0.00
13.40	0.04	1	316.62	0.04	0.04	0.00
13.45	0.04	1	316.62	0.04	0.04	0.00
13.50	0.04	1	316.62	0.04	0.04	0.00
13.55	0.04	1	316.62	0.04	0.04	0.00
13.60	0.04	1	316.62	0.04	0.04	0.00
13.65	0.03	1	316.62	0.03	0.03	0.00
13.70	0.03	1	316.62	0.03	0.03	0.00
13.75	0.03	1	316.62	0.03	0.03	0.00
13.80	0.03	1	316.62	0.03	0.03	0.00
13.85	0.03	1	316.62	0.03	0.03	0.00
13.90	0.03	1	316.62	0.03	0.03	0.00
13.95	0.03	1	316.62	0.03	0.03	0.00
14.00	0.03	1	316.62	0.03	0.03	0.00
14.05	0.03	1	316.62	0.03	0.03	0.00
14.10	0.03	1	316.62	0.03	0.03	0.00
14.15	0.03	1	316.62	0.03	0.03	0.00
14.20	0.03	1	316.62	0.03	0.03	0.00
14.25	0.03	1	316.62	0.03	0.03	0.00
14.30	0.03	1	316.62	0.03	0.03	0.00
14.35	0.03	1	316.62	0.03	0.03	0.00
14.40	0.03	1	316.62	0.03	0.03	0.00
14.45	0.03	1	316.62	0.03	0.03	0.00
14.50	0.03	1	316.62	0.03	0.03	0.00
14.55	0.03	1	316.62	0.03	0.03	0.00
14.60	0.03	0	316.62	0.03	0.03	0.00
14.65	0.03	0	316.62	0.03	0.03	0.00
14.70	0.02	0	316.62	0.02	0.02	0.00
14.75	0.02	0	316.62	0.02	0.02	0.00
14.80	0.02	0	316.62	0.02	0.02	0.00
14.85	0.02	0	316.61	0.02	0.02	0.00
14.90	0.02	0	316.61	0.02	0.02	0.00
14.95	0.02	0	316.61	0.02	0.02	0.00
15.00	0.02	0	316.61	0.02	0.02	0.00

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration BMP #1B (Sta. 2020+50 to Sta. 2022+56)**

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes	Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
0.20 ac	A = Area draining to the practice	
0.20 ac	A_I = Impervious area draining to the practice	
1.00 decimal	I = percent impervious area draining to the practice, in decimal form	
0.95 unitless	$Rv = \text{Runoff coefficient} = 0.05 + (0.9 \times I)$	
0.19 ac-in	$WQV = 1'' \times Rv \times A$	
690 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
172 cf	25% x WQV (check calc for sediment forebay volume)	
<u>None</u>	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V_{SED} = sediment forebay volume, if used for pretreatment	$\leftarrow \geq 25\% WQV$
120 cf	V = volume ¹ (attach a stage-storage table)	$\leftarrow \geq WQV$
1,601 sf	A_{SA} = surface area of the bottom of the pond	
5.60 iph	I_{DESIGN} = design infiltration rate ²	
0.2 hours	$T_{DRAIN} = V / (A_{SA} * I_{DESIGN})$	$\leftarrow \leq 72\text{-hrs}$
319.02 feet	E_{BTM} = elevation of the bottom of the practice	
314.90 feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
314.40 feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
4.12 feet	D_{SHWT} = separation from SHWT ³	$\leftarrow \geq *^3$
4.6 feet	D_{ROCK} = separation from bedrock ³	$\leftarrow \geq *^3$
ft	D_T = depth of trench, if trench proposed	$\leftarrow 4 - 10\text{ ft}$
No Yes/No	If a trench or underground system is proposed, observation well provided	
Stone	If a trench is proposed, material in trench	
N/A	If a basin is proposed, basin floor material	
N/A Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
N/A :1	If a basin is proposed, pond side slopes	$\leftarrow \geq 3:1$
319.52 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
319.53 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
320.52 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation \leq Elevation of the top of the trench?	\leftarrow yes
YES	If a basin is proposed, 50-year peak elevation \leq Elevation of berm?	\leftarrow yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Peak elevations for the 10 year and 50 year storm events assume infiltration is no longer occurring and stormwater within the BMP is flowing to the transverse drains at the low points.

Infiltration rates were determined from NRCS Ksat values for the soil type.

Bedrock elevation was determined from ledge lines on cross sections.

SHWT elevation was determined from nearest boring.

Stage-Area-Storage for Pond 14P: BMP #1B (South)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
319.02	0	0	319.56	5,559	481
319.03	107	8	319.57	5,614	501
319.04	213	16	319.58	5,670	521
319.05	320	24	319.59	5,726	541
319.06	427	32	319.60	5,781	562
319.07	534	40	319.61	5,837	582
319.08	640	48	319.62	5,893	602
319.09	747	56	319.63	5,948	622
319.10	854	64	319.64	6,004	642
319.11	960	72	319.65	6,060	663
319.12	1,067	80	319.66	6,116	683
319.13	1,174	88	319.67	6,171	703
319.14	1,281	96	319.68	6,227	723
319.15	1,387	104	319.69	6,283	743
319.16	1,494	112	319.70	6,338	764
319.17	1,601	120	319.71	6,394	784
319.18	1,708	128	319.72	6,450	804
319.19	1,814	136	319.73	6,505	824
319.20	1,921	144	319.74	6,561	844
319.21	2,028	152	319.75	6,617	864
319.22	2,134	160	319.76	6,672	885
319.23	2,241	168	319.77	6,728	905
319.24	2,348	176	319.78	6,784	925
319.25	2,455	184	319.79	6,839	945
319.26	2,561	192	319.80	6,895	965
319.27	2,668	200	319.81	6,951	986
319.28	2,775	208	319.82	7,006	1,006
319.29	2,881	216	319.83	7,062	1,026
319.30	2,988	224	319.84	7,118	1,046
319.31	3,095	232	319.85	7,173	1,066
319.32	3,202	240	319.86	7,229	1,086
319.33	3,308	248	319.87	7,285	1,107
319.34	3,415	256	319.88	7,340	1,127
319.35	3,522	264	319.89	7,396	1,147
319.36	3,628	272	319.90	7,452	1,167
319.37	3,735	280	319.91	7,508	1,187
319.38	3,842	288	319.92	7,563	1,208
319.39	3,949	296	319.93	7,619	1,228
319.40	4,055	304	319.94	7,675	1,248
319.41	4,162	312	319.95	7,730	1,268
319.42	4,269	320	319.96	7,786	1,288
319.43	4,376	328	319.97	7,842	1,308
319.44	4,482	336	319.98	7,897	1,329
319.45	4,589	344	319.99	7,953	1,349
319.46	4,696	352	320.00	8,009	1,369
319.47	4,802	360	320.01	8,064	1,389
319.48	4,909	368	320.02	8,120	1,409
319.49	5,016	376	320.03	8,120	1,434
319.50	5,123	384	320.04	8,120	1,458
319.51	5,229	392	320.05	8,120	1,482
319.52	5,336	400	320.06	8,120	1,507
319.53	5,392	420	320.07	8,120	1,531
319.54	5,447	441	320.08	8,120	1,556
319.55	5,503	461	320.09	8,120	1,580

Max. El. of
WQV in
BMP #1B
South Cell

Top of
Dam El.

Stage-Area-Storage for Pond 14P: BMP #1B (South) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
320.10	8,120	1,604
320.11	8,120	1,629
320.12	8,120	1,653
320.13	8,120	1,677
320.14	8,120	1,702
320.15	8,120	1,726
320.16	8,120	1,750
320.17	8,120	1,775
320.18	8,120	1,799
320.19	8,120	1,824
320.20	8,120	1,848
320.21	8,120	1,872
320.22	8,120	1,897
320.23	8,120	1,921
320.24	8,120	1,945
320.25	8,120	1,970
320.26	8,120	1,994
320.27	8,120	2,018
320.28	8,120	2,043
320.29	8,120	2,067
320.30	8,120	2,091
320.31	8,120	2,116
320.32	8,120	2,140
320.33	8,120	2,165
320.34	8,120	2,189
320.35	8,120	2,213
320.36	8,120	2,238
320.37	8,120	2,262
320.38	8,120	2,286
320.39	8,120	2,311
320.40	8,120	2,335
320.41	8,120	2,359
320.42	8,120	2,384
320.43	8,120	2,408
320.44	8,120	2,433
320.45	8,120	2,457
320.46	8,120	2,481
320.47	8,120	2,506
320.48	8,120	2,530
320.49	8,120	2,554
320.50	8,120	2,579
320.51	8,120	2,603
320.52	8,120	2,627

Hydrograph for Pond 14P: BMP #1B (South)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.01	0	319.02	0.00	0.00	0.00
10.05	0.01	1	319.02	0.00	0.00	0.00
10.10	0.01	2	319.02	0.00	0.00	0.00
10.15	0.01	2	319.02	0.00	0.00	0.00
10.20	0.01	3	319.02	0.00	0.00	0.00
10.25	0.01	3	319.02	0.01	0.01	0.00
10.30	0.01	3	319.02	0.01	0.01	0.00
10.35	0.01	4	319.02	0.01	0.01	0.00
10.40	0.01	4	319.02	0.01	0.01	0.00
10.45	0.01	4	319.03	0.01	0.01	0.00
10.50	0.01	4	319.03	0.01	0.01	0.00
10.55	0.01	4	319.03	0.01	0.01	0.00
10.60	0.01	5	319.03	0.01	0.01	0.00
10.65	0.01	5	319.03	0.01	0.01	0.00
10.70	0.01	5	319.03	0.01	0.01	0.00
10.75	0.01	5	319.03	0.01	0.01	0.00
10.80	0.01	5	319.03	0.01	0.01	0.00
10.85	0.01	6	319.03	0.01	0.01	0.00
10.90	0.01	6	319.03	0.01	0.01	0.00
10.95	0.01	6	319.03	0.01	0.01	0.00
11.00	0.01	6	319.03	0.01	0.01	0.00
11.05	0.01	7	319.03	0.01	0.01	0.00
11.10	0.01	7	319.03	0.01	0.01	0.00
11.15	0.01	7	319.03	0.01	0.01	0.00
11.20	0.02	8	319.03	0.01	0.01	0.00
11.25	0.02	8	319.03	0.01	0.01	0.00
11.30	0.02	8	319.03	0.01	0.01	0.00
11.35	0.02	9	319.03	0.02	0.02	0.00
11.40	0.02	9	319.03	0.02	0.02	0.00
11.45	0.02	10	319.03	0.02	0.02	0.00
11.50	0.02	10	319.03	0.02	0.02	0.00
11.55	0.02	11	319.03	0.02	0.02	0.00
11.60	0.04	13	319.04	0.02	0.02	0.00
11.65	0.06	17	319.04	0.03	0.03	0.00
11.70	0.08	23	319.05	0.04	0.04	0.00
11.75	0.11	31	319.06	0.05	0.05	0.00
11.80	0.13	41	319.07	0.07	0.07	0.00
11.85	0.18	55	319.09	0.10	0.10	0.00
11.90	0.25	74	319.11	0.13	0.13	0.00
11.95	0.31	98	319.14	0.17	0.17	0.00
12.00	0.26	115	319.16	0.20	0.20	0.00
12.05	0.14	115	319.16	0.20	0.20	0.00
12.10	0.07	100	319.14	0.17	0.17	0.00
12.15	0.05	82	319.12	0.14	0.14	0.00
12.20	0.04	66	319.10	0.11	0.11	0.00
12.25	0.04	54	319.09	0.09	0.09	0.00
12.30	0.03	45	319.08	0.08	0.08	0.00
12.35	0.03	38	319.07	0.07	0.07	0.00
12.40	0.03	32	319.06	0.06	0.06	0.00
12.45	0.03	28	319.05	0.05	0.05	0.00
12.50	0.02	24	319.05	0.04	0.04	0.00
12.55	0.02	21	319.05	0.04	0.04	0.00
12.60	0.02	18	319.04	0.03	0.03	0.00
12.65	0.02	16	319.04	0.03	0.03	0.00

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

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Hydrograph for Pond 14P: BMP #1B (South) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.02	15	319.04	0.03	0.03	0.00
12.75	0.02	14	319.04	0.02	0.02	0.00
12.80	0.02	13	319.04	0.02	0.02	0.00
12.85	0.02	12	319.03	0.02	0.02	0.00
12.90	0.02	11	319.03	0.02	0.02	0.00
12.95	0.01	10	319.03	0.02	0.02	0.00
13.00	0.01	10	319.03	0.02	0.02	0.00
13.05	0.01	9	319.03	0.02	0.02	0.00
13.10	0.01	9	319.03	0.02	0.02	0.00
13.15	0.01	9	319.03	0.01	0.01	0.00
13.20	0.01	8	319.03	0.01	0.01	0.00
13.25	0.01	8	319.03	0.01	0.01	0.00
13.30	0.01	8	319.03	0.01	0.01	0.00
13.35	0.01	8	319.03	0.01	0.01	0.00
13.40	0.01	7	319.03	0.01	0.01	0.00
13.45	0.01	7	319.03	0.01	0.01	0.00
13.50	0.01	7	319.03	0.01	0.01	0.00
13.55	0.01	7	319.03	0.01	0.01	0.00
13.60	0.01	7	319.03	0.01	0.01	0.00
13.65	0.01	6	319.03	0.01	0.01	0.00
13.70	0.01	6	319.03	0.01	0.01	0.00
13.75	0.01	6	319.03	0.01	0.01	0.00
13.80	0.01	6	319.03	0.01	0.01	0.00
13.85	0.01	6	319.03	0.01	0.01	0.00
13.90	0.01	6	319.03	0.01	0.01	0.00
13.95	0.01	5	319.03	0.01	0.01	0.00
14.00	0.01	5	319.03	0.01	0.01	0.00
14.05	0.01	5	319.03	0.01	0.01	0.00
14.10	0.01	5	319.03	0.01	0.01	0.00
14.15	0.01	5	319.03	0.01	0.01	0.00
14.20	0.01	5	319.03	0.01	0.01	0.00
14.25	0.01	5	319.03	0.01	0.01	0.00
14.30	0.01	5	319.03	0.01	0.01	0.00
14.35	0.01	5	319.03	0.01	0.01	0.00
14.40	0.01	5	319.03	0.01	0.01	0.00
14.45	0.01	5	319.03	0.01	0.01	0.00
14.50	0.01	5	319.03	0.01	0.01	0.00
14.55	0.01	4	319.03	0.01	0.01	0.00
14.60	0.01	4	319.03	0.01	0.01	0.00
14.65	0.01	4	319.03	0.01	0.01	0.00
14.70	0.01	4	319.03	0.01	0.01	0.00
14.75	0.01	4	319.03	0.01	0.01	0.00
14.80	0.01	4	319.03	0.01	0.01	0.00
14.85	0.01	4	319.03	0.01	0.01	0.00
14.90	0.01	4	319.03	0.01	0.01	0.00
14.95	0.01	4	319.03	0.01	0.01	0.00
15.00	0.01	4	319.03	0.01	0.01	0.00

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration BMP #2A (Sta. 2025+03 to Sta. 2028+82)**

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes	Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
0.35 ac	A = Area draining to the practice	
0.35 ac	A_I = Impervious area draining to the practice	
1.00 decimal	I = percent impervious area draining to the practice, in decimal form	
0.95 unitless	$Rv = \text{Runoff coefficient} = 0.05 + (0.9 \times I)$	
0.33 ac-in	$WQV = 1'' \times Rv \times A$	
1,207 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
302 cf	25% x WQV (check calc for sediment forebay volume)	
<u>None</u>	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V_{SED} = sediment forebay volume, if used for pretreatment	$\leftarrow \geq 25\% WQV$
182 cf	V = volume ¹ (attach a stage-storage table)	$\leftarrow \geq WQV$
2,583 sf	A_{SA} = surface area of the bottom of the pond	
5.60 iph	I_{DESIGN} = design infiltration rate ²	
0.2 hours	$T_{DRAIN} = \text{drain time} = V / (A_{SA} * I_{DESIGN})$	$\leftarrow \leq 72\text{-hrs}$
320.52 feet	E_{BTM} = elevation of the bottom of the practice	
302.70 feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
302.70 feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
17.82 feet	D_{SHWT} = separation from SHWT ³	$\leftarrow \geq *^3$
17.8 feet	D_{ROCK} = separation from bedrock ³	$\leftarrow \geq *^3$
ft	D_T = depth of trench, if trench proposed	$\leftarrow 4 - 10\text{ ft}$
No Yes/No	If a trench or underground system is proposed, observation well provided	
Stone	If a trench is proposed, material in trench	
N/A	If a basin is proposed, basin floor material	
N/A Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
N/A :1	If a basin is proposed, pond side slopes	$\leftarrow \geq 3:1$
321.10 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
321.31 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
322.02 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation \leq Elevation of the top of the trench?	\leftarrow yes
YES	If a basin is proposed, 50-year peak elevation \leq Elevation of berm?	\leftarrow yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Peak elevations for the 10 year and 50 year storm events assume infiltration is no longer occurring and stormwater within the BMP is flowing to the transverse drains at the low points.

Infiltration rates were determined from NRCS Ksat values for the soil type.

Bedrock elevation was determined from ledge lines on cross sections.

SHWT elevation is assumed to be at ledge elevation.

Stage-Area-Storage for Pond 20P: BMP #2A (North)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
320.52	0	0	321.06	2,914	240
320.53	55	0	321.07	2,956	249
320.54	110	0	321.08	2,997	258
320.55	165	1	321.09	3,039	267
320.56	220	1	321.10	3,080	276
320.57	275	2	321.11	3,122	285
320.58	330	3	321.12	3,163	295
320.59	385	4	321.13	3,205	304
320.60	440	5	321.14	3,246	314
320.61	495	7	321.15	3,288	324
320.62	550	8	321.16	3,329	334
320.63	605	10	321.17	3,371	344
320.64	660	12	321.18	3,412	354
320.65	714	14	321.19	3,454	364
320.66	769	16	321.20	3,495	375
320.67	824	19	321.21	3,537	385
320.68	879	21	321.22	3,578	396
320.69	934	24	321.23	3,620	407
320.70	989	27	321.24	3,661	418
320.71	1,044	30	321.25	3,703	429
320.72	1,099	33	321.26	3,744	440
320.73	1,154	36	321.27	3,786	451
320.74	1,209	40	321.28	3,828	463
320.75	1,264	44	321.29	3,869	474
320.76	1,319	47	321.30	3,911	486
320.77	1,374	52	321.31	3,952	498
320.78	1,429	56	321.32	3,994	509
320.79	1,484	60	321.33	4,035	522
320.80	1,539	65	321.34	4,077	534
320.81	1,594	69	321.35	4,118	546
320.82	1,649	74	321.36	4,160	558
320.83	1,704	79	321.37	4,201	571
320.84	1,759	84	321.38	4,243	584
320.85	1,814	90	321.39	4,284	596
320.86	1,869	95	321.40	4,326	609
320.87	1,924	101	321.41	4,367	622
320.88	1,979	107	321.42	4,409	636
320.89	2,034	113	321.43	4,450	649
320.90	2,088	119	321.44	4,492	662
320.91	2,143	125	321.45	4,533	676
320.92	2,198	132	321.46	4,575	689
320.93	2,253	139	321.47	4,616	703
320.94	2,308	145	321.48	4,658	717
320.95	2,363	152	321.49	4,699	731
320.96	2,418	160	321.50	4,741	745
320.97	2,473	167	321.51	4,782	760
320.98	2,528	174	321.52	4,824	774
320.99	2,583	182	321.53	4,864	789
321.00	2,638	190	321.54	4,904	803
321.01	2,693	198	321.55	4,944	818
321.02	2,748	206	321.56	4,984	833
321.03	2,790	214	321.57	5,024	848
321.04	2,831	223	321.58	5,064	863
321.05	2,873	231	321.59	5,103	878

Max. El. of
WQV in
BMP #2A
North Cell

Top of
Dam El.

Stage-Area-Storage for Pond 20P: BMP #2A (North) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
321.60	5,143	894
321.61	5,183	909
321.62	5,223	925
321.63	5,263	940
321.64	5,303	956
321.65	5,343	972
321.66	5,383	988
321.67	5,423	1,005
321.68	5,463	1,021
321.69	5,503	1,037
321.70	5,543	1,054
321.71	5,582	1,071
321.72	5,622	1,087
321.73	5,662	1,104
321.74	5,702	1,121
321.75	5,742	1,139
321.76	5,782	1,156
321.77	5,822	1,173
321.78	5,862	1,191
321.79	5,902	1,208
321.80	5,942	1,226
321.81	5,982	1,244
321.82	6,022	1,262
321.83	6,062	1,280
321.84	6,101	1,298
321.85	6,141	1,317
321.86	6,181	1,335
321.87	6,221	1,354
321.88	6,261	1,373
321.89	6,301	1,391
321.90	6,341	1,410
321.91	6,381	1,429
321.92	6,421	1,449
321.93	6,461	1,468
321.94	6,501	1,487
321.95	6,541	1,507
321.96	6,580	1,527
321.97	6,620	1,546
321.98	6,660	1,566
321.99	6,700	1,586
322.00	6,740	1,607
322.01	6,780	1,627
322.02	6,820	1,647

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

Printed 7/18/2017

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Hydrograph for Pond 20P: BMP #2A (North)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.01	0	320.53	0.01	0.01	0.00
10.05	0.01	0	320.54	0.01	0.01	0.00
10.10	0.01	0	320.54	0.01	0.01	0.00
10.15	0.01	0	320.54	0.01	0.01	0.00
10.20	0.01	0	320.54	0.01	0.01	0.00
10.25	0.01	0	320.54	0.01	0.01	0.00
10.30	0.01	0	320.54	0.01	0.01	0.00
10.35	0.01	0	320.54	0.01	0.01	0.00
10.40	0.01	0	320.54	0.01	0.01	0.00
10.45	0.01	0	320.54	0.01	0.01	0.00
10.50	0.02	0	320.54	0.01	0.01	0.00
10.55	0.02	0	320.54	0.02	0.02	0.00
10.60	0.02	0	320.54	0.02	0.02	0.00
10.65	0.02	0	320.54	0.02	0.02	0.00
10.70	0.02	1	320.54	0.02	0.02	0.00
10.75	0.02	1	320.55	0.02	0.02	0.00
10.80	0.02	1	320.55	0.02	0.02	0.00
10.85	0.02	1	320.55	0.02	0.02	0.00
10.90	0.02	1	320.55	0.02	0.02	0.00
10.95	0.02	1	320.55	0.02	0.02	0.00
11.00	0.02	1	320.55	0.02	0.02	0.00
11.05	0.02	1	320.55	0.02	0.02	0.00
11.10	0.02	1	320.55	0.02	0.02	0.00
11.15	0.03	1	320.55	0.02	0.02	0.00
11.20	0.03	1	320.56	0.03	0.03	0.00
11.25	0.03	1	320.56	0.03	0.03	0.00
11.30	0.03	1	320.56	0.03	0.03	0.00
11.35	0.03	2	320.56	0.03	0.03	0.00
11.40	0.03	2	320.57	0.03	0.03	0.00
11.45	0.04	2	320.57	0.03	0.03	0.00
11.50	0.04	2	320.57	0.04	0.04	0.00
11.55	0.04	3	320.58	0.04	0.04	0.00
11.60	0.07	4	320.59	0.05	0.05	0.00
11.65	0.10	8	320.62	0.07	0.07	0.00
11.70	0.14	15	320.66	0.10	0.10	0.00
11.75	0.19	25	320.69	0.12	0.12	0.00
11.80	0.24	39	320.74	0.15	0.15	0.00
11.85	0.33	59	320.79	0.19	0.19	0.00
11.90	0.45	91	320.85	0.24	0.24	0.00
11.95	0.55	133	320.92	0.29	0.29	0.00
12.00	0.46	169	320.97	0.32	0.32	0.00
12.05	0.25	174	320.98	0.33	0.33	0.00
12.10	0.12	150	320.95	0.30	0.30	0.00
12.15	0.08	117	320.90	0.27	0.27	0.00
12.20	0.07	85	320.84	0.23	0.23	0.00
12.25	0.06	59	320.79	0.19	0.19	0.00
12.30	0.06	39	320.74	0.16	0.16	0.00
12.35	0.05	24	320.69	0.12	0.12	0.00
12.40	0.05	14	320.65	0.09	0.09	0.00
12.45	0.05	8	320.62	0.07	0.07	0.00
12.50	0.04	5	320.60	0.05	0.05	0.00
12.55	0.04	3	320.58	0.04	0.04	0.00
12.60	0.03	2	320.57	0.04	0.04	0.00
12.65	0.03	2	320.57	0.03	0.03	0.00

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

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Hydrograph for Pond 20P: BMP #2A (North) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.03	2	320.57	0.03	0.03	0.00
12.75	0.03	2	320.56	0.03	0.03	0.00
12.80	0.03	2	320.56	0.03	0.03	0.00
12.85	0.03	1	320.56	0.03	0.03	0.00
12.90	0.03	1	320.56	0.03	0.03	0.00
12.95	0.03	1	320.56	0.03	0.03	0.00
13.00	0.03	1	320.56	0.03	0.03	0.00
13.05	0.02	1	320.56	0.03	0.03	0.00
13.10	0.02	1	320.55	0.02	0.02	0.00
13.15	0.02	1	320.55	0.02	0.02	0.00
13.20	0.02	1	320.55	0.02	0.02	0.00
13.25	0.02	1	320.55	0.02	0.02	0.00
13.30	0.02	1	320.55	0.02	0.02	0.00
13.35	0.02	1	320.55	0.02	0.02	0.00
13.40	0.02	1	320.55	0.02	0.02	0.00
13.45	0.02	1	320.55	0.02	0.02	0.00
13.50	0.02	1	320.55	0.02	0.02	0.00
13.55	0.02	1	320.55	0.02	0.02	0.00
13.60	0.02	1	320.55	0.02	0.02	0.00
13.65	0.02	1	320.55	0.02	0.02	0.00
13.70	0.02	1	320.54	0.02	0.02	0.00
13.75	0.02	1	320.54	0.02	0.02	0.00
13.80	0.02	1	320.54	0.02	0.02	0.00
13.85	0.02	0	320.54	0.02	0.02	0.00
13.90	0.02	0	320.54	0.02	0.02	0.00
13.95	0.02	0	320.54	0.02	0.02	0.00
14.00	0.02	0	320.54	0.02	0.02	0.00
14.05	0.01	0	320.54	0.01	0.01	0.00
14.10	0.01	0	320.54	0.01	0.01	0.00
14.15	0.01	0	320.54	0.01	0.01	0.00
14.20	0.01	0	320.54	0.01	0.01	0.00
14.25	0.01	0	320.54	0.01	0.01	0.00
14.30	0.01	0	320.54	0.01	0.01	0.00
14.35	0.01	0	320.54	0.01	0.01	0.00
14.40	0.01	0	320.54	0.01	0.01	0.00
14.45	0.01	0	320.54	0.01	0.01	0.00
14.50	0.01	0	320.54	0.01	0.01	0.00
14.55	0.01	0	320.54	0.01	0.01	0.00
14.60	0.01	0	320.54	0.01	0.01	0.00
14.65	0.01	0	320.54	0.01	0.01	0.00
14.70	0.01	0	320.54	0.01	0.01	0.00
14.75	0.01	0	320.54	0.01	0.01	0.00
14.80	0.01	0	320.54	0.01	0.01	0.00
14.85	0.01	0	320.54	0.01	0.01	0.00
14.90	0.01	0	320.54	0.01	0.01	0.00
14.95	0.01	0	320.54	0.01	0.01	0.00
15.00	0.01	0	320.54	0.01	0.01	0.00

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration BMP #2B (Sta. 2028+82 to Sta. 2039+00)**

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes	Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
0.93 ac	A = Area draining to the practice	
0.93 ac	$A_I = \text{Impervious area draining to the practice}$	
1.00 decimal	I = percent impervious area draining to the practice, in decimal form	
0.95 unitless	$Rv = \text{Runoff coefficient} = 0.05 + (0.9 \times I)$	
0.88 ac-in	$WQV = 1'' \times Rv \times A$	
3,207 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
802 cf	25% x WQV (check calc for sediment forebay volume)	
<u>None</u>	Method of pretreatment? (not required for clean or roof runoff)	
- cf	$V_{SED} = \text{sediment forebay volume, if used for pretreatment}$	$\leftarrow \geq 25\%WQV$
609 cf	$V = \text{volume}^1$ (attach a stage-storage table)	$\leftarrow \geq WQV$
6,329 sf	$A_{SA} = \text{surface area of the bottom of the pond}$	
5.60 iph	$I_{DESIGN} = \text{design infiltration rate}^2$	
0.2 hours	$T_{DRAIN} = \text{drain time} = V / (A_{SA} * I_{DESIGN})$	$\leftarrow \leq 72\text{-hrs}$
321.20 feet	$E_{BTM} = \text{elevation of the bottom of the practice}$	
310.30 feet	$E_{SHWT} = \text{elevation of SHWT (if none found, enter the lowest elevation of the test pit)}$	
288.70 feet	$E_{ROCK} = \text{elevation of bedrock (if none found, enter the lowest elevation of the test pit)}$	
10.90 feet	$D_{SHWT} = \text{separation from SHWT}^3$	$\leftarrow \geq *^3$
32.5 feet	$D_{ROCK} = \text{separation from bedrock}^3$	$\leftarrow \geq *^3$
ft	$D_T = \text{depth of trench, if trench proposed}$	$\leftarrow 4 - 10 \text{ ft}$
No Yes/No	If a trench or underground system is proposed, observation well provided	
Stone	If a trench is proposed, material in trench	
N/A	If a basin is proposed, basin floor material	
N/A Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
N/A :1	If a basin is proposed, pond side slopes	$\leftarrow \geq 3:1$
321.92 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
322.24 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
322.70 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation \leq Elevation of the top of the trench?	$\leftarrow \text{yes}$
YES	If a basin is proposed, 50-year peak elevation \leq Elevation of berm?	$\leftarrow \text{yes}$

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Peak elevations for the 10 year and 50 year storm events assume infiltration is no longer occurring and stormwater within the BMP is flowing to the transverse drains at the low points.

Infiltration rates were determined from NRCS Ksat values for the soil type.

Bedrock elevation was determined from ledge lines on cross sections.

SHWT elevation was determined from nearest boring.

Stage-Area-Storage for Pond 24P: BMP #2B (South)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
321.20	0	0	321.74	5,911	510
321.21	111	8	321.75	6,003	533
321.22	222	17	321.76	6,095	557
321.23	333	25	321.77	6,187	580
321.24	444	33	321.78	6,279	604
321.25	554	42	321.79	6,371	627
321.26	665	50	321.80	6,462	651
321.27	776	58	321.81	6,554	675
321.28	887	67	321.82	6,646	698
321.29	998	75	321.83	6,738	722
321.30	1,109	83	321.84	6,830	745
321.31	1,220	91	321.85	6,922	769
321.32	1,331	100	321.86	7,013	792
321.33	1,441	108	321.87	7,105	816
321.34	1,552	116	321.88	7,197	839
321.35	1,663	125	321.89	7,289	863
321.36	1,774	133	321.90	7,381	886
321.37	1,885	141	321.91	7,473	910
321.38	1,996	150	321.92	7,564	933
321.39	2,107	158	321.93	7,656	957
321.40	2,218	166	321.94	7,748	980
321.41	2,328	175	321.95	7,840	1,004
321.42	2,439	183	321.96	7,932	1,027
321.43	2,550	191	321.97	8,024	1,051
321.44	2,661	200	321.98	8,116	1,074
321.45	2,772	208	321.99	8,207	1,098
321.46	2,883	216	322.00	8,299	1,121
321.47	2,994	225	322.01	8,391	1,145
321.48	3,105	233	322.02	8,483	1,168
321.49	3,216	241	322.03	8,575	1,192
321.50	3,326	249	322.04	8,667	1,215
321.51	3,437	258	322.05	8,758	1,239
321.52	3,548	266	322.06	8,850	1,263
321.53	3,659	274	322.07	8,942	1,286
321.54	3,770	283	322.08	9,034	1,310
321.55	3,881	291	322.09	9,126	1,333
321.56	3,992	299	322.10	9,218	1,357
321.57	4,103	308	322.11	9,309	1,380
321.58	4,213	316	322.12	9,401	1,404
321.59	4,324	324	322.13	9,493	1,427
321.60	4,435	333	322.14	9,585	1,451
321.61	4,546	341	322.15	9,677	1,474
321.62	4,657	349	322.16	9,769	1,498
321.63	4,768	358	322.17	9,860	1,521
321.64	4,879	366	322.18	9,952	1,545
321.65	4,990	374	322.19	10,044	1,568
321.66	5,100	383	322.20	10,136	1,592
321.67	5,211	391	322.21	10,184	1,626
321.68	5,322	399	322.22	10,232	1,660
321.69	5,433	407	322.23	10,280	1,694
321.70	5,544	416	322.24	10,327	1,728
321.71	5,636	439	322.25	10,375	1,762
321.72	5,728	463	322.26	10,423	1,796
321.73	5,820	486	322.27	10,471	1,830

Max. El. of
WQV in
BMP #2B
South CellTop of
Dam El.

Stage-Area-Storage for Pond 24P: BMP #2B (South) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
322.28	10,519	1,864
322.29	10,567	1,898
322.30	10,614	1,932
322.31	10,662	1,966
322.32	10,710	2,000
322.33	10,758	2,034
322.34	10,806	2,068
322.35	10,854	2,102
322.36	10,901	2,136
322.37	10,949	2,170
322.38	10,997	2,204
322.39	11,045	2,238
322.40	11,093	2,272
322.41	11,141	2,306
322.42	11,188	2,340
322.43	11,236	2,374
322.44	11,284	2,408
322.45	11,332	2,442
322.46	11,380	2,476
322.47	11,428	2,510
322.48	11,476	2,544
322.49	11,523	2,578
322.50	11,571	2,612
322.51	11,619	2,646
322.52	11,667	2,680
322.53	11,715	2,714
322.54	11,763	2,748
322.55	11,810	2,782
322.56	11,858	2,816
322.57	11,906	2,850
322.58	11,954	2,884
322.59	12,002	2,918
322.60	12,050	2,952
322.61	12,097	2,986
322.62	12,145	3,020
322.63	12,193	3,054
322.64	12,241	3,088
322.65	12,289	3,122
322.66	12,337	3,156
322.67	12,384	3,190
322.68	12,432	3,224
322.69	12,480	3,258
322.70	12,528	3,292

Stage-Area-Storage for Pond 25P: BMP #2B (North)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
321.20	0	0	321.74	2,027	164
321.21	38	0	321.75	2,065	170
321.22	75	0	321.76	2,102	177
321.23	113	1	321.77	2,140	183
321.24	150	1	321.78	2,177	189
321.25	188	1	321.79	2,215	196
321.26	225	2	321.80	2,253	203
321.27	263	3	321.81	2,290	210
321.28	300	4	321.82	2,328	216
321.29	338	5	321.83	2,365	224
321.30	375	6	321.84	2,403	231
321.31	413	7	321.85	2,440	238
321.32	451	8	321.86	2,478	245
321.33	488	10	321.87	2,515	253
321.34	526	11	321.88	2,553	260
321.35	563	13	321.89	2,590	268
321.36	601	14	321.90	2,628	276
321.37	638	16	321.91	2,665	284
321.38	676	18	321.92	2,703	292
321.39	713	20	321.93	2,741	300
321.40	751	23	321.94	2,778	308
321.41	788	25	321.95	2,816	317
321.42	826	27	321.96	2,853	325
321.43	863	30	321.97	2,891	334
321.44	901	32	321.98	2,928	343
321.45	939	35	321.99	2,966	351
321.46	976	38	322.00	3,003	360
321.47	1,014	41	322.01	3,041	369
321.48	1,051	44	322.02	3,078	379
321.49	1,089	47	322.03	3,116	388
321.50	1,126	51	322.04	3,149	397
321.51	1,164	54	322.05	3,182	407
321.52	1,201	58	322.06	3,216	416
321.53	1,239	61	322.07	3,249	426
321.54	1,276	65	322.08	3,282	436
321.55	1,314	69	322.09	3,315	446
321.56	1,352	73	322.10	3,348	456
321.57	1,389	77	322.11	3,381	466
321.58	1,427	81	322.12	3,415	476
321.59	1,464	86	322.13	3,448	486
321.60	1,502	90	322.14	3,481	497
321.61	1,539	95	322.15	3,514	507
321.62	1,577	99	322.16	3,547	518
321.63	1,614	104	322.17	3,580	529
321.64	1,652	109	322.18	3,614	539
321.65	1,689	114	322.19	3,647	550
321.66	1,727	119	322.20	3,680	561
321.67	1,764	124	322.21	3,707	572
321.68	1,802	130	322.22	3,734	583
321.69	1,840	135	322.23	3,761	595
321.70	1,877	141	322.24	3,788	606
321.71	1,915	146	322.25	3,816	617
321.72	1,952	152	322.26	3,843	629
321.73	1,990	158	322.27	3,870	641

Max. El. of
WQV in
BMP #2B
North Cell

Top of
Dam El.

Stage-Area-Storage for Pond 25P: BMP #2B (North) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
322.28	3,897	652
322.29	3,924	664
322.30	3,951	676
322.31	3,978	688
322.32	4,005	700
322.33	4,033	712
322.34	4,060	724
322.35	4,087	736
322.36	4,114	748
322.37	4,141	761
322.38	4,168	773
322.39	4,195	786
322.40	4,222	798
322.41	4,250	811
322.42	4,277	824
322.43	4,304	837
322.44	4,331	850
322.45	4,358	863
322.46	4,385	876
322.47	4,412	889
322.48	4,439	902
322.49	4,466	916
322.50	4,494	929
322.51	4,521	943
322.52	4,548	956
322.53	4,575	970
322.54	4,602	984
322.55	4,629	997
322.56	4,656	1,011
322.57	4,683	1,025
322.58	4,711	1,040
322.59	4,738	1,054
322.60	4,765	1,068
322.61	4,792	1,082
322.62	4,819	1,097
322.63	4,846	1,111
322.64	4,873	1,126
322.65	4,900	1,140
322.66	4,928	1,155
322.67	4,955	1,170
322.68	4,982	1,185
322.69	5,009	1,200
322.70	5,036	1,215

Hydrograph for Pond 24P: BMP #2B (South)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.01	1	321.20	0.00	0.00	0.00
10.05	0.01	3	321.20	0.00	0.00	0.00
10.10	0.01	4	321.20	0.01	0.01	0.00
10.15	0.01	5	321.21	0.01	0.01	0.00
10.20	0.01	6	321.21	0.01	0.01	0.00
10.25	0.02	7	321.21	0.01	0.01	0.00
10.30	0.02	7	321.21	0.01	0.01	0.00
10.35	0.02	8	321.21	0.01	0.01	0.00
10.40	0.02	8	321.21	0.01	0.01	0.00
10.45	0.02	9	321.21	0.02	0.02	0.00
10.50	0.02	9	321.21	0.02	0.02	0.00
10.55	0.02	9	321.21	0.02	0.02	0.00
10.60	0.02	10	321.21	0.02	0.02	0.00
10.65	0.02	10	321.21	0.02	0.02	0.00
10.70	0.02	11	321.21	0.02	0.02	0.00
10.75	0.02	11	321.21	0.02	0.02	0.00
10.80	0.02	11	321.21	0.02	0.02	0.00
10.85	0.02	12	321.21	0.02	0.02	0.00
10.90	0.02	12	321.21	0.02	0.02	0.00
10.95	0.02	13	321.22	0.02	0.02	0.00
11.00	0.03	13	321.22	0.02	0.02	0.00
11.05	0.03	14	321.22	0.02	0.02	0.00
11.10	0.03	14	321.22	0.02	0.02	0.00
11.15	0.03	15	321.22	0.03	0.03	0.00
11.20	0.03	16	321.22	0.03	0.03	0.00
11.25	0.03	17	321.22	0.03	0.03	0.00
11.30	0.04	18	321.22	0.03	0.03	0.00
11.35	0.04	19	321.22	0.03	0.03	0.00
11.40	0.04	20	321.22	0.03	0.03	0.00
11.45	0.04	21	321.23	0.04	0.04	0.00
11.50	0.04	22	321.23	0.04	0.04	0.00
11.55	0.05	23	321.23	0.04	0.04	0.00
11.60	0.08	27	321.23	0.05	0.05	0.00
11.65	0.12	35	321.24	0.06	0.06	0.00
11.70	0.17	48	321.26	0.08	0.08	0.00
11.75	0.22	66	321.28	0.11	0.11	0.00
11.80	0.28	87	321.30	0.15	0.15	0.00
11.85	0.39	116	321.34	0.20	0.20	0.00
11.90	0.53	156	321.39	0.27	0.27	0.00
11.95	0.64	205	321.45	0.36	0.36	0.00
12.00	0.54	242	321.49	0.42	0.42	0.00
12.05	0.29	242	321.49	0.42	0.42	0.00
12.10	0.14	210	321.45	0.36	0.36	0.00
12.15	0.10	172	321.41	0.30	0.30	0.00
12.20	0.08	139	321.37	0.24	0.24	0.00
12.25	0.07	114	321.34	0.20	0.20	0.00
12.30	0.07	95	321.31	0.16	0.16	0.00
12.35	0.06	79	321.30	0.14	0.14	0.00
12.40	0.06	68	321.28	0.12	0.12	0.00
12.45	0.05	58	321.27	0.10	0.10	0.00
12.50	0.05	50	321.26	0.09	0.09	0.00
12.55	0.04	44	321.25	0.08	0.08	0.00
12.60	0.04	39	321.25	0.07	0.07	0.00
12.65	0.04	34	321.24	0.06	0.06	0.00

Hydrograph for Pond 24P: BMP #2B (South) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.04	31	321.24	0.05	0.05	0.00
12.75	0.04	28	321.23	0.05	0.05	0.00
12.80	0.03	26	321.23	0.05	0.05	0.00
12.85	0.03	25	321.23	0.04	0.04	0.00
12.90	0.03	23	321.23	0.04	0.04	0.00
12.95	0.03	22	321.23	0.04	0.04	0.00
13.00	0.03	21	321.23	0.04	0.04	0.00
13.05	0.03	20	321.22	0.03	0.03	0.00
13.10	0.03	19	321.22	0.03	0.03	0.00
13.15	0.03	18	321.22	0.03	0.03	0.00
13.20	0.03	17	321.22	0.03	0.03	0.00
13.25	0.03	17	321.22	0.03	0.03	0.00
13.30	0.03	16	321.22	0.03	0.03	0.00
13.35	0.02	16	321.22	0.03	0.03	0.00
13.40	0.02	15	321.22	0.03	0.03	0.00
13.45	0.02	15	321.22	0.03	0.03	0.00
13.50	0.02	15	321.22	0.03	0.03	0.00
13.55	0.02	14	321.22	0.02	0.02	0.00
13.60	0.02	14	321.22	0.02	0.02	0.00
13.65	0.02	13	321.22	0.02	0.02	0.00
13.70	0.02	13	321.22	0.02	0.02	0.00
13.75	0.02	13	321.22	0.02	0.02	0.00
13.80	0.02	12	321.21	0.02	0.02	0.00
13.85	0.02	12	321.21	0.02	0.02	0.00
13.90	0.02	12	321.21	0.02	0.02	0.00
13.95	0.02	12	321.21	0.02	0.02	0.00
14.00	0.02	11	321.21	0.02	0.02	0.00
14.05	0.02	11	321.21	0.02	0.02	0.00
14.10	0.02	11	321.21	0.02	0.02	0.00
14.15	0.02	11	321.21	0.02	0.02	0.00
14.20	0.02	10	321.21	0.02	0.02	0.00
14.25	0.02	10	321.21	0.02	0.02	0.00
14.30	0.02	10	321.21	0.02	0.02	0.00
14.35	0.02	10	321.21	0.02	0.02	0.00
14.40	0.02	10	321.21	0.02	0.02	0.00
14.45	0.02	10	321.21	0.02	0.02	0.00
14.50	0.02	10	321.21	0.02	0.02	0.00
14.55	0.02	9	321.21	0.02	0.02	0.00
14.60	0.02	9	321.21	0.02	0.02	0.00
14.65	0.02	9	321.21	0.02	0.02	0.00
14.70	0.02	9	321.21	0.02	0.02	0.00
14.75	0.02	9	321.21	0.02	0.02	0.00
14.80	0.01	9	321.21	0.02	0.02	0.00
14.85	0.01	9	321.21	0.02	0.02	0.00
14.90	0.01	9	321.21	0.02	0.02	0.00
14.95	0.01	9	321.21	0.01	0.01	0.00
15.00	0.01	9	321.21	0.01	0.01	0.00

Hydrograph for Pond 25P: BMP #2B (North)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.02	0	321.23	0.01	0.01	0.00
10.05	0.02	1	321.24	0.02	0.02	0.00
10.10	0.02	1	321.24	0.02	0.02	0.00
10.15	0.02	1	321.24	0.02	0.02	0.00
10.20	0.02	1	321.24	0.02	0.02	0.00
10.25	0.02	1	321.24	0.02	0.02	0.00
10.30	0.02	1	321.24	0.02	0.02	0.00
10.35	0.02	1	321.24	0.02	0.02	0.00
10.40	0.02	1	321.24	0.02	0.02	0.00
10.45	0.02	1	321.24	0.02	0.02	0.00
10.50	0.02	1	321.25	0.02	0.02	0.00
10.55	0.02	1	321.25	0.02	0.02	0.00
10.60	0.02	1	321.25	0.02	0.02	0.00
10.65	0.03	1	321.25	0.02	0.02	0.00
10.70	0.03	2	321.25	0.03	0.03	0.00
10.75	0.03	2	321.25	0.03	0.03	0.00
10.80	0.03	2	321.26	0.03	0.03	0.00
10.85	0.03	2	321.26	0.03	0.03	0.00
10.90	0.03	2	321.26	0.03	0.03	0.00
10.95	0.03	2	321.26	0.03	0.03	0.00
11.00	0.03	2	321.27	0.03	0.03	0.00
11.05	0.03	3	321.27	0.03	0.03	0.00
11.10	0.04	3	321.27	0.03	0.03	0.00
11.15	0.04	3	321.27	0.04	0.04	0.00
11.20	0.04	3	321.28	0.04	0.04	0.00
11.25	0.04	4	321.28	0.04	0.04	0.00
11.30	0.05	4	321.29	0.04	0.04	0.00
11.35	0.05	5	321.29	0.05	0.05	0.00
11.40	0.05	5	321.30	0.05	0.05	0.00
11.45	0.05	6	321.30	0.05	0.05	0.00
11.50	0.06	7	321.31	0.05	0.05	0.00
11.55	0.06	8	321.32	0.06	0.06	0.00
11.60	0.10	11	321.34	0.07	0.07	0.00
11.65	0.15	19	321.38	0.09	0.09	0.00
11.70	0.21	34	321.44	0.12	0.12	0.00
11.75	0.28	54	321.51	0.15	0.15	0.00
11.80	0.36	81	321.58	0.18	0.18	0.00
11.85	0.49	121	321.66	0.23	0.23	0.00
11.90	0.67	180	321.77	0.28	0.28	0.00
11.95	0.82	259	321.88	0.33	0.33	0.00
12.00	0.69	331	321.97	0.37	0.37	0.00
12.05	0.37	358	322.00	0.39	0.39	0.00
12.10	0.18	338	321.97	0.38	0.38	0.00
12.15	0.12	299	321.93	0.35	0.35	0.00
12.20	0.10	257	321.88	0.33	0.33	0.00
12.25	0.09	218	321.82	0.30	0.30	0.00
12.30	0.09	183	321.77	0.28	0.28	0.00
12.35	0.08	150	321.72	0.25	0.25	0.00
12.40	0.07	121	321.66	0.23	0.23	0.00
12.45	0.07	96	321.61	0.20	0.20	0.00
12.50	0.06	73	321.56	0.18	0.18	0.00
12.55	0.06	55	321.51	0.15	0.15	0.00
12.60	0.05	39	321.46	0.13	0.13	0.00
12.65	0.05	27	321.42	0.11	0.11	0.00

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

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Hydrograph for Pond 25P: BMP #2B (North) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.05	18	321.38	0.09	0.09	0.00
12.75	0.05	12	321.35	0.07	0.07	0.00
12.80	0.04	9	321.32	0.06	0.06	0.00
12.85	0.04	6	321.31	0.05	0.05	0.00
12.90	0.04	5	321.29	0.05	0.05	0.00
12.95	0.04	4	321.29	0.04	0.04	0.00
13.00	0.04	4	321.28	0.04	0.04	0.00
13.05	0.04	4	321.28	0.04	0.04	0.00
13.10	0.04	3	321.28	0.04	0.04	0.00
13.15	0.03	3	321.27	0.04	0.04	0.00
13.20	0.03	3	321.27	0.03	0.03	0.00
13.25	0.03	3	321.27	0.03	0.03	0.00
13.30	0.03	3	321.27	0.03	0.03	0.00
13.35	0.03	2	321.27	0.03	0.03	0.00
13.40	0.03	2	321.26	0.03	0.03	0.00
13.45	0.03	2	321.26	0.03	0.03	0.00
13.50	0.03	2	321.26	0.03	0.03	0.00
13.55	0.03	2	321.26	0.03	0.03	0.00
13.60	0.03	2	321.26	0.03	0.03	0.00
13.65	0.03	2	321.26	0.03	0.03	0.00
13.70	0.03	2	321.25	0.03	0.03	0.00
13.75	0.03	2	321.25	0.03	0.03	0.00
13.80	0.03	2	321.25	0.03	0.03	0.00
13.85	0.02	2	321.25	0.02	0.02	0.00
13.90	0.02	1	321.25	0.02	0.02	0.00
13.95	0.02	1	321.25	0.02	0.02	0.00
14.00	0.02	1	321.25	0.02	0.02	0.00
14.05	0.02	1	321.25	0.02	0.02	0.00
14.10	0.02	1	321.25	0.02	0.02	0.00
14.15	0.02	1	321.24	0.02	0.02	0.00
14.20	0.02	1	321.24	0.02	0.02	0.00
14.25	0.02	1	321.24	0.02	0.02	0.00
14.30	0.02	1	321.24	0.02	0.02	0.00
14.35	0.02	1	321.24	0.02	0.02	0.00
14.40	0.02	1	321.24	0.02	0.02	0.00
14.45	0.02	1	321.24	0.02	0.02	0.00
14.50	0.02	1	321.24	0.02	0.02	0.00
14.55	0.02	1	321.24	0.02	0.02	0.00
14.60	0.02	1	321.24	0.02	0.02	0.00
14.65	0.02	1	321.24	0.02	0.02	0.00
14.70	0.02	1	321.24	0.02	0.02	0.00
14.75	0.02	1	321.24	0.02	0.02	0.00
14.80	0.02	1	321.24	0.02	0.02	0.00
14.85	0.02	1	321.24	0.02	0.02	0.00
14.90	0.02	1	321.24	0.02	0.02	0.00
14.95	0.02	1	321.24	0.02	0.02	0.00
15.00	0.02	1	321.24	0.02	0.02	0.00

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration BMP #3A (Sta. 2049+00 to Sta. 2060+49)**

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes	Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
1.04 ac	A = Area draining to the practice	
1.04 ac	A_I = Impervious area draining to the practice	
1.00 decimal	I = percent impervious area draining to the practice, in decimal form	
0.95 unitless	$Rv = \text{Runoff coefficient} = 0.05 + (0.9 \times I)$	
0.99 ac-in	$WQV = 1'' \times Rv \times A$	
3,586 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
897 cf	25% x WQV (check calc for sediment forebay volume)	
<u>None</u>	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V_{SED} = sediment forebay volume, if used for pretreatment	$\leftarrow \geq 25\%WQV$
529 cf	V = volume ¹ (attach a stage-storage table)	$\leftarrow \geq WQV$
8,332 sf	A_{SA} = surface area of the bottom of the pond	
5.60 iph	I_{DESIGN} = design infiltration rate ²	
0.1 hours	$T_{DRAIN} = \text{drain time} = V / (A_{SA} * I_{DESIGN})$	$\leftarrow \leq 72\text{-hrs}$
323.81 feet	E_{BTM} = elevation of the bottom of the practice	
308.20 feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
308.20 feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
15.61 feet	D_{SHWT} = separation from SHWT ³	$\leftarrow \geq *^3$
15.6 feet	D_{ROCK} = separation from bedrock ³	$\leftarrow \geq *^3$
ft	D_T = depth of trench, if trench proposed	$\leftarrow 4 - 10\text{ ft}$
No Yes/No	If a trench or underground system is proposed, observation well provided	
Stone	If a trench is proposed, material in trench	
N/A	If a basin is proposed, basin floor material	
N/A Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
N/A :1	If a basin is proposed, pond side slopes	$\leftarrow \geq 3:1$
324.48 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
324.73 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
325.31 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation \leq Elevation of the top of the trench?	$\leftarrow \text{yes}$
YES	If a basin is proposed, 50-year peak elevation \leq Elevation of berm?	$\leftarrow \text{yes}$

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Peak elevations for the 10 year and 50 year storm events assume infiltration is no longer occurring and stormwater within the BMP is flowing to the transverse drains at the low points.

Infiltration rates were determined from NRCS Ksat values for the soil type.

Bedrock elevation was determined from ledge lines on cross sections.

SHWT elevation is assumed to be at ledge elevation.

Stage-Area-Storage for Pond 29P: BMP #3A (South)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
323.81	0	0	324.35	7,751	671
323.82	150	11	324.36	7,812	698
323.83	300	23	324.37	7,872	726
323.84	450	34	324.38	7,933	753
323.85	601	45	324.39	7,994	780
323.86	751	56	324.40	8,054	807
323.87	901	68	324.41	8,115	834
323.88	1,051	79	324.42	8,176	861
323.89	1,201	90	324.43	8,237	888
323.90	1,351	101	324.44	8,297	915
323.91	1,502	113	324.45	8,358	942
323.92	1,652	124	324.46	8,419	969
323.93	1,802	135	324.47	8,480	996
323.94	1,952	146	324.48	8,540	1,023
323.95	2,102	158	324.49	8,601	1,051
323.96	2,252	169	324.50	8,662	1,078
323.97	2,403	180	324.51	8,722	1,105
Max. El. of WQV in BMP #3A South Cell	324.01	3,003	324.52	8,783	1,132
			324.53	8,844	1,159
			324.54	8,905	1,186
			324.55	8,965	1,213
324.02	3,153	237	324.56	9,026	1,240
324.03	3,304	248	324.57	9,087	1,267
324.04	3,454	259	324.58	9,147	1,294
324.05	3,604	270	324.59	9,208	1,321
324.06	3,754	282	324.60	9,269	1,348
324.07	3,904	293	324.61	9,330	1,375
324.08	4,054	304	324.62	9,390	1,403
324.09	4,204	315	324.63	9,451	1,430
324.10	4,355	327	324.64	9,512	1,457
324.11	4,505	338	324.65	9,572	1,484
324.12	4,655	349	324.66	9,633	1,511
324.13	4,805	360	324.67	9,694	1,538
324.14	4,955	372	324.68	9,755	1,565
324.15	5,105	383	324.69	9,815	1,592
324.16	5,256	394	324.70	9,876	1,619
324.17	5,406	405	324.71	9,937	1,646
324.18	5,556	417	324.72	9,998	1,673
324.19	5,706	428	324.73	10,058	1,700
324.20	5,856	439	324.74	10,119	1,727
324.21	6,006	450	324.75	10,180	1,755
324.22	6,157	462	324.76	10,240	1,782
324.23	6,307	473	324.77	10,301	1,809
324.24	6,457	484	324.78	10,362	1,836
324.25	6,607	496	324.79	10,423	1,863
324.26	6,757	507	324.80	10,483	1,890
324.27	6,907	518	324.81	10,544	1,917
324.28	7,058	529	324.82	10,591	1,952
324.29	7,208	541	324.83	10,637	1,987
324.30	7,358	552	324.84	10,684	2,022
Top of Dam El.	324.31	7,508	324.85	10,730	2,057
			324.86	10,777	2,093
			324.87	10,823	2,128
			324.88	10,870	2,163
324.32	7,569	590			
324.33	7,629	617			
324.34	7,690	644			

Stage-Area-Storage for Pond 29P: BMP #3A (South) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
324.89	10,916	2,198
324.90	10,963	2,233
324.91	11,010	2,268
324.92	11,056	2,303
324.93	11,103	2,338
324.94	11,149	2,374
324.95	11,196	2,409
324.96	11,242	2,444
324.97	11,289	2,479
324.98	11,336	2,514
324.99	11,382	2,549
325.00	11,429	2,584
325.01	11,475	2,619
325.02	11,522	2,655
325.03	11,568	2,690
325.04	11,615	2,725
325.05	11,661	2,760
325.06	11,708	2,795
325.07	11,755	2,830
325.08	11,801	2,865
325.09	11,848	2,900
325.10	11,894	2,936
325.11	11,941	2,971
325.12	11,987	3,006
325.13	12,034	3,041
325.14	12,080	3,076
325.15	12,127	3,111
325.16	12,174	3,146
325.17	12,220	3,181
325.18	12,267	3,217
325.19	12,313	3,252
325.20	12,360	3,287
325.21	12,406	3,322
325.22	12,453	3,357
325.23	12,500	3,392
325.24	12,546	3,427
325.25	12,593	3,462
325.26	12,639	3,498
325.27	12,686	3,533
325.28	12,732	3,568
325.29	12,779	3,603
325.30	12,825	3,638
325.31	12,872	3,673

Stage-Area-Storage for Pond 30P: BMP #3A (North)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
323.81	0	0	324.35	7,330	612
323.82	140	0	324.36	7,409	634
323.83	280	1	324.37	7,489	656
323.84	421	2	324.38	7,568	679
323.85	561	3	324.39	7,648	702
323.86	701	5	324.40	7,727	725
323.87	841	8	324.41	7,807	748
323.88	982	10	324.42	7,886	772
323.89	1,122	13	324.43	7,966	795
323.90	1,262	17	324.44	8,045	820
323.91	1,402	21	324.45	8,124	844
323.92	1,543	25	324.46	8,204	868
323.93	1,683	30	324.47	8,283	893
323.94	1,823	36	324.48	8,363	918
323.95	1,963	41	324.49	8,442	943
323.96	2,104	47	324.50	8,522	969
323.97	2,244	54	324.51	8,601	994
323.98	2,384	61	324.52	8,681	1,020
323.99	2,524	68	324.53	8,760	1,046
324.00	2,665	76	324.54	8,840	1,073
324.01	2,805	84	324.55	8,919	1,099
324.02	2,945	93	324.56	8,999	1,126
324.03	3,085	102	324.57	9,078	1,153
324.04	3,226	111	324.58	9,157	1,181
324.05	3,366	121	324.59	9,237	1,208
324.06	3,506	131	324.60	9,316	1,236
324.07	3,646	142	324.61	9,396	1,264
324.08	3,786	153	324.62	9,475	1,293
324.09	3,927	165	324.63	9,555	1,321
324.10	4,067	177	324.64	9,634	1,350
324.11	4,207	189	324.65	9,714	1,379
324.12	4,347	202	324.66	9,793	1,408
324.13	4,488	215	324.67	9,873	1,438
324.14	4,628	229	324.68	9,952	1,467
324.15	4,768	243	324.69	10,031	1,497
324.16	4,908	258	324.70	10,111	1,528
324.17	5,049	273	324.71	10,190	1,558
324.18	5,189	288	324.72	10,270	1,589
324.19	5,329	304	324.73	10,349	1,620
324.20	5,469	320	324.74	10,429	1,651
324.21	5,610	337	324.75	10,508	1,682
324.22	5,750	354	324.76	10,588	1,714
324.23	5,890	371	324.77	10,667	1,746
324.24	6,030	389	324.78	10,747	1,778
324.25	6,171	407	324.79	10,826	1,810
324.26	6,311	426	324.80	10,906	1,843
324.27	6,451	445	324.81	10,985	1,876
324.28	6,591	465	324.82	11,063	1,909
324.29	6,732	485	324.83	11,142	1,942
324.30	6,872	505	324.84	11,220	1,976
324.31	7,012	526	324.85	11,299	2,009
324.32	7,091	547	324.86	11,377	2,043
324.33	7,171	568	324.87	11,455	2,078
324.34	7,250	590	324.88	11,534	2,112

Max. El. of
WQV in
BMP #3A
North Cell

Top of
Dam El.

Stage-Area-Storage for Pond 30P: BMP #3A (North) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
324.89	11,612	2,147
324.90	11,690	2,182
324.91	11,769	2,217
324.92	11,847	2,252
324.93	11,926	2,288
324.94	12,004	2,324
324.95	12,082	2,360
324.96	12,161	2,396
324.97	12,239	2,433
324.98	12,317	2,470
324.99	12,396	2,507
325.00	12,474	2,544
325.01	12,553	2,582
325.02	12,631	2,620
325.03	12,709	2,658
325.04	12,788	2,696
325.05	12,866	2,734
325.06	12,945	2,773
325.07	13,023	2,812
325.08	13,101	2,851
325.09	13,180	2,891
325.10	13,258	2,930
325.11	13,336	2,970
325.12	13,415	3,010
325.13	13,493	3,051
325.14	13,572	3,091
325.15	13,650	3,132
325.16	13,728	3,173
325.17	13,807	3,214
325.18	13,885	3,256
325.19	13,963	3,298
325.20	14,042	3,340
325.21	14,120	3,382
325.22	14,199	3,424
325.23	14,277	3,467
325.24	14,355	3,510
325.25	14,434	3,553
325.26	14,512	3,597
325.27	14,590	3,640
325.28	14,669	3,684
325.29	14,747	3,728
325.30	14,826	3,773
325.31	14,904	3,817

Hydrograph for Pond 29P: BMP #3A (South)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.01	1	323.81	0.00	0.00	0.00
10.05	0.01	2	323.81	0.00	0.00	0.00
10.10	0.01	4	323.81	0.01	0.01	0.00
10.15	0.01	5	323.81	0.01	0.01	0.00
10.20	0.01	5	323.81	0.01	0.01	0.00
10.25	0.01	6	323.82	0.01	0.01	0.00
10.30	0.01	7	323.82	0.01	0.01	0.00
10.35	0.01	7	323.82	0.01	0.01	0.00
10.40	0.01	7	323.82	0.01	0.01	0.00
10.45	0.02	8	323.82	0.01	0.01	0.00
10.50	0.02	8	323.82	0.01	0.01	0.00
10.55	0.02	8	323.82	0.01	0.01	0.00
10.60	0.02	9	323.82	0.02	0.02	0.00
10.65	0.02	9	323.82	0.02	0.02	0.00
10.70	0.02	9	323.82	0.02	0.02	0.00
10.75	0.02	10	323.82	0.02	0.02	0.00
10.80	0.02	10	323.82	0.02	0.02	0.00
10.85	0.02	11	323.82	0.02	0.02	0.00
10.90	0.02	11	323.82	0.02	0.02	0.00
10.95	0.02	11	323.82	0.02	0.02	0.00
11.00	0.02	12	323.82	0.02	0.02	0.00
11.05	0.02	12	323.82	0.02	0.02	0.00
11.10	0.03	13	323.82	0.02	0.02	0.00
11.15	0.03	13	323.82	0.02	0.02	0.00
11.20	0.03	14	323.82	0.02	0.02	0.00
11.25	0.03	15	323.82	0.03	0.03	0.00
11.30	0.03	16	323.82	0.03	0.03	0.00
11.35	0.03	17	323.82	0.03	0.03	0.00
11.40	0.04	18	323.83	0.03	0.03	0.00
11.45	0.04	19	323.83	0.03	0.03	0.00
11.50	0.04	20	323.83	0.03	0.03	0.00
11.55	0.04	21	323.83	0.04	0.04	0.00
11.60	0.07	24	323.83	0.04	0.04	0.00
11.65	0.11	31	323.84	0.05	0.05	0.00
11.70	0.15	43	323.85	0.07	0.07	0.00
11.75	0.20	59	323.86	0.10	0.10	0.00
11.80	0.25	78	323.88	0.13	0.13	0.00
11.85	0.35	103	323.90	0.18	0.18	0.00
11.90	0.47	139	323.93	0.24	0.24	0.00
11.95	0.57	183	323.97	0.32	0.32	0.00
12.00	0.48	216	324.00	0.37	0.37	0.00
12.05	0.26	216	324.00	0.37	0.37	0.00
12.10	0.12	187	323.98	0.32	0.32	0.00
12.15	0.09	153	323.95	0.26	0.26	0.00
12.20	0.07	124	323.92	0.21	0.21	0.00
12.25	0.07	102	323.90	0.18	0.18	0.00
12.30	0.06	84	323.88	0.15	0.15	0.00
12.35	0.06	71	323.87	0.12	0.12	0.00
12.40	0.05	60	323.86	0.10	0.10	0.00
12.45	0.05	52	323.86	0.09	0.09	0.00
12.50	0.04	45	323.85	0.08	0.08	0.00
12.55	0.04	39	323.84	0.07	0.07	0.00
12.60	0.04	34	323.84	0.06	0.06	0.00
12.65	0.03	31	323.84	0.05	0.05	0.00

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

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Hydrograph for Pond 29P: BMP #3A (South) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.03	28	323.83	0.05	0.05	0.00
12.75	0.03	25	323.83	0.04	0.04	0.00
12.80	0.03	23	323.83	0.04	0.04	0.00
12.85	0.03	22	323.83	0.04	0.04	0.00
12.90	0.03	21	323.83	0.04	0.04	0.00
12.95	0.03	20	323.83	0.03	0.03	0.00
13.00	0.03	19	323.83	0.03	0.03	0.00
13.05	0.03	18	323.83	0.03	0.03	0.00
13.10	0.03	17	323.82	0.03	0.03	0.00
13.15	0.02	16	323.82	0.03	0.03	0.00
13.20	0.02	16	323.82	0.03	0.03	0.00
13.25	0.02	15	323.82	0.03	0.03	0.00
13.30	0.02	15	323.82	0.03	0.03	0.00
13.35	0.02	14	323.82	0.02	0.02	0.00
13.40	0.02	14	323.82	0.02	0.02	0.00
13.45	0.02	13	323.82	0.02	0.02	0.00
13.50	0.02	13	323.82	0.02	0.02	0.00
13.55	0.02	13	323.82	0.02	0.02	0.00
13.60	0.02	12	323.82	0.02	0.02	0.00
13.65	0.02	12	323.82	0.02	0.02	0.00
13.70	0.02	12	323.82	0.02	0.02	0.00
13.75	0.02	11	323.82	0.02	0.02	0.00
13.80	0.02	11	323.82	0.02	0.02	0.00
13.85	0.02	11	323.82	0.02	0.02	0.00
13.90	0.02	11	323.82	0.02	0.02	0.00
13.95	0.02	10	323.82	0.02	0.02	0.00
14.00	0.02	10	323.82	0.02	0.02	0.00
14.05	0.02	10	323.82	0.02	0.02	0.00
14.10	0.02	10	323.82	0.02	0.02	0.00
14.15	0.02	9	323.82	0.02	0.02	0.00
14.20	0.02	9	323.82	0.02	0.02	0.00
14.25	0.01	9	323.82	0.02	0.02	0.00
14.30	0.01	9	323.82	0.02	0.02	0.00
14.35	0.01	9	323.82	0.02	0.02	0.00
14.40	0.01	9	323.82	0.02	0.02	0.00
14.45	0.01	9	323.82	0.01	0.01	0.00
14.50	0.01	8	323.82	0.01	0.01	0.00
14.55	0.01	8	323.82	0.01	0.01	0.00
14.60	0.01	8	323.82	0.01	0.01	0.00
14.65	0.01	8	323.82	0.01	0.01	0.00
14.70	0.01	8	323.82	0.01	0.01	0.00
14.75	0.01	8	323.82	0.01	0.01	0.00
14.80	0.01	8	323.82	0.01	0.01	0.00
14.85	0.01	8	323.82	0.01	0.01	0.00
14.90	0.01	8	323.82	0.01	0.01	0.00
14.95	0.01	8	323.82	0.01	0.01	0.00
15.00	0.01	8	323.82	0.01	0.01	0.00

Hydrograph for Pond 30P: BMP #3A (North)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.02	0	323.82	0.02	0.02	0.00
10.05	0.02	0	323.82	0.02	0.02	0.00
10.10	0.02	0	323.82	0.02	0.02	0.00
10.15	0.02	0	323.82	0.02	0.02	0.00
10.20	0.02	0	323.82	0.02	0.02	0.00
10.25	0.02	0	323.82	0.03	0.03	0.00
10.30	0.03	0	323.82	0.03	0.03	0.00
10.35	0.03	0	323.82	0.03	0.03	0.00
10.40	0.03	0	323.82	0.03	0.03	0.00
10.45	0.03	1	323.83	0.03	0.03	0.00
10.50	0.03	1	323.83	0.03	0.03	0.00
10.55	0.03	1	323.83	0.03	0.03	0.00
10.60	0.03	1	323.83	0.03	0.03	0.00
10.65	0.03	1	323.83	0.03	0.03	0.00
10.70	0.03	1	323.83	0.03	0.03	0.00
10.75	0.04	1	323.83	0.03	0.03	0.00
10.80	0.04	1	323.83	0.04	0.04	0.00
10.85	0.04	1	323.83	0.04	0.04	0.00
10.90	0.04	1	323.83	0.04	0.04	0.00
10.95	0.04	1	323.83	0.04	0.04	0.00
11.00	0.04	1	323.83	0.04	0.04	0.00
11.05	0.04	1	323.83	0.04	0.04	0.00
11.10	0.05	1	323.83	0.05	0.05	0.00
11.15	0.05	2	323.84	0.05	0.05	0.00
11.20	0.05	2	323.84	0.05	0.05	0.00
11.25	0.06	2	323.84	0.05	0.05	0.00
11.30	0.06	2	323.84	0.06	0.06	0.00
11.35	0.06	2	323.84	0.06	0.06	0.00
11.40	0.07	3	323.85	0.06	0.06	0.00
11.45	0.07	3	323.85	0.07	0.07	0.00
11.50	0.07	3	323.85	0.07	0.07	0.00
11.55	0.08	4	323.85	0.08	0.08	0.00
11.60	0.13	7	323.87	0.10	0.10	0.00
11.65	0.20	14	323.89	0.15	0.15	0.00
11.70	0.28	25	323.92	0.20	0.20	0.00
11.75	0.36	42	323.95	0.26	0.26	0.00
11.80	0.46	65	323.99	0.32	0.32	0.00
11.85	0.64	99	324.03	0.39	0.39	0.00
11.90	0.87	155	324.08	0.49	0.49	0.00
11.95	1.06	229	324.14	0.60	0.60	0.00
12.00	0.89	289	324.18	0.67	0.67	0.00
12.05	0.47	291	324.18	0.68	0.68	0.00
12.10	0.23	238	324.15	0.61	0.61	0.00
12.15	0.16	171	324.10	0.52	0.52	0.00
12.20	0.13	113	324.04	0.42	0.42	0.00
12.25	0.12	68	323.99	0.33	0.33	0.00
12.30	0.11	38	323.94	0.24	0.24	0.00
12.35	0.11	20	323.91	0.18	0.18	0.00
12.40	0.10	11	323.88	0.13	0.13	0.00
12.45	0.09	7	323.87	0.10	0.10	0.00
12.50	0.08	5	323.86	0.09	0.09	0.00
12.55	0.07	4	323.85	0.08	0.08	0.00
12.60	0.07	3	323.85	0.07	0.07	0.00
12.65	0.06	3	323.85	0.06	0.06	0.00

Hydrograph for Pond 30P: BMP #3A (North) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.06	3	323.84	0.06	0.06	0.00
12.75	0.06	2	323.84	0.06	0.06	0.00
12.80	0.06	2	323.84	0.06	0.06	0.00
12.85	0.06	2	323.84	0.06	0.06	0.00
12.90	0.05	2	323.84	0.05	0.05	0.00
12.95	0.05	2	323.84	0.05	0.05	0.00
13.00	0.05	2	323.84	0.05	0.05	0.00
13.05	0.05	2	323.84	0.05	0.05	0.00
13.10	0.05	1	323.84	0.05	0.05	0.00
13.15	0.04	1	323.83	0.05	0.05	0.00
13.20	0.04	1	323.83	0.04	0.04	0.00
13.25	0.04	1	323.83	0.04	0.04	0.00
13.30	0.04	1	323.83	0.04	0.04	0.00
13.35	0.04	1	323.83	0.04	0.04	0.00
13.40	0.04	1	323.83	0.04	0.04	0.00
13.45	0.04	1	323.83	0.04	0.04	0.00
13.50	0.04	1	323.83	0.04	0.04	0.00
13.55	0.04	1	323.83	0.04	0.04	0.00
13.60	0.04	1	323.83	0.04	0.04	0.00
13.65	0.03	1	323.83	0.03	0.03	0.00
13.70	0.03	1	323.83	0.03	0.03	0.00
13.75	0.03	1	323.83	0.03	0.03	0.00
13.80	0.03	1	323.83	0.03	0.03	0.00
13.85	0.03	1	323.83	0.03	0.03	0.00
13.90	0.03	1	323.83	0.03	0.03	0.00
13.95	0.03	1	323.83	0.03	0.03	0.00
14.00	0.03	1	323.83	0.03	0.03	0.00
14.05	0.03	1	323.83	0.03	0.03	0.00
14.10	0.03	1	323.83	0.03	0.03	0.00
14.15	0.03	1	323.83	0.03	0.03	0.00
14.20	0.03	0	323.83	0.03	0.03	0.00
14.25	0.03	0	323.83	0.03	0.03	0.00
14.30	0.03	0	323.82	0.03	0.03	0.00
14.35	0.03	0	323.82	0.03	0.03	0.00
14.40	0.03	0	323.82	0.03	0.03	0.00
14.45	0.03	0	323.82	0.03	0.03	0.00
14.50	0.03	0	323.82	0.03	0.03	0.00
14.55	0.03	0	323.82	0.03	0.03	0.00
14.60	0.03	0	323.82	0.03	0.03	0.00
14.65	0.03	0	323.82	0.03	0.03	0.00
14.70	0.02	0	323.82	0.02	0.02	0.00
14.75	0.02	0	323.82	0.02	0.02	0.00
14.80	0.02	0	323.82	0.02	0.02	0.00
14.85	0.02	0	323.82	0.02	0.02	0.00
14.90	0.02	0	323.82	0.02	0.02	0.00
14.95	0.02	0	323.82	0.02	0.02	0.00
15.00	0.02	0	323.82	0.02	0.02	0.00

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration BMP #3B (Sta. 2060+49 to Sta. 2062+00)**

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes	Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
0.14 ac	A = Area draining to the practice	
0.14 ac	A_I = Impervious area draining to the practice	
0.96 decimal	I = percent impervious area draining to the practice, in decimal form	
0.92 unitless	$Rv = \text{Runoff coefficient} = 0.05 + (0.9 \times I)$	
0.13 ac-in	$WQV = 1'' \times Rv \times A$	
466 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
117 cf	25% x WQV (check calc for sediment forebay volume)	
<u>None</u>	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V_{SED} = sediment forebay volume, if used for pretreatment	$\leftarrow \geq 25\% WQV$
86 cf	V = volume ¹ (attach a stage-storage table)	$\leftarrow \geq WQV$
1,153 sf	A_{SA} = surface area of the bottom of the pond	
5.60 iph	I_{DESIGN} = design infiltration rate ²	
0.2 hours	$T_{DRAIN} = V / (A_{SA} * I_{DESIGN})$	$\leftarrow \leq 72\text{-hrs}$
326.17 feet	E_{BTM} = elevation of the bottom of the practice	
316.70 feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
316.70 feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
9.47 feet	D_{SHWT} = separation from SHWT ³	$\leftarrow \geq *^3$
9.5 feet	D_{ROCK} = separation from bedrock ³	$\leftarrow \geq *^3$
ft	D_T = depth of trench, if trench proposed	$\leftarrow 4 - 10\text{ ft}$
No Yes/No	If a trench or underground system is proposed, observation well provided	
Stone	If a trench is proposed, material in trench	
N/A	If a basin is proposed, basin floor material	
N/A Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
N/A :1	If a basin is proposed, pond side slopes	$\leftarrow \geq 3:1$
326.72 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
326.77 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
327.67 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation \leq Elevation of the top of the trench?	\leftarrow yes
YES	If a basin is proposed, 50-year peak elevation \leq Elevation of berm?	\leftarrow yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Peak elevations for the 10 year and 50 year storm events assume infiltration is no longer occurring and stormwater within the BMP is flowing to the transverse drains at the low points.

Infiltration rates were determined from NRCS Ksat values for the soil type.

Bedrock elevation was determined from ledge lines on cross sections.

SHWT elevation is assumed to be at ledge elevation.

Stage-Area-Storage for Pond 33P: BMP #3B (South)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
326.17	0	0	326.71	5,764	501
326.18	115	9	326.72	5,764	519
326.19	231	17	326.73	5,764	536
326.20	346	26	326.74	5,764	553
326.21	461	35	326.75	5,764	571
326.22	576	43	326.76	5,764	588
326.23	692	52	326.77	5,764	605
326.24	807	61	326.78	5,764	623
326.25	922	69	326.79	5,764	640
326.26	1,038	78	326.80	5,764	657
Max. El. of WQV in BMP #3B South Cell	326.27	1,153	326.81	5,764	674
326.28	1,268	95	326.82	5,764	692
326.29	1,383	104	326.83	5,764	709
326.30	1,499	112	326.84	5,764	726
326.31	1,614	121	326.85	5,764	744
326.32	1,729	130	326.86	5,764	761
326.33	1,844	138	326.87	5,764	778
326.34	1,960	147	326.88	5,764	795
326.35	2,075	156	326.89	5,764	813
326.36	2,190	164	326.90	5,764	830
326.37	2,306	173	326.91	5,764	847
326.38	2,421	182	326.92	5,764	865
326.39	2,536	190	326.93	5,764	882
326.40	2,651	199	326.94	5,764	899
326.41	2,767	208	326.95	5,764	916
326.42	2,882	216	326.96	5,764	934
326.43	2,997	225	326.97	5,764	951
326.44	3,113	233	326.98	5,764	968
326.45	3,228	242	326.99	5,764	986
326.46	3,343	251	327.00	5,764	1,003
326.47	3,458	259	327.01	5,764	1,020
326.48	3,574	268	327.02	5,764	1,038
326.49	3,689	277	327.03	5,764	1,055
326.50	3,804	285	327.04	5,764	1,072
326.51	3,920	294	327.05	5,764	1,089
326.52	4,035	303	327.06	5,764	1,107
326.53	4,150	311	327.07	5,764	1,124
326.54	4,265	320	327.08	5,764	1,141
326.55	4,381	329	327.09	5,764	1,159
326.56	4,496	337	327.10	5,764	1,176
326.57	4,611	346	327.11	5,764	1,193
326.58	4,726	354	327.12	5,764	1,210
326.59	4,842	363	327.13	5,764	1,228
326.60	4,957	372	327.14	5,764	1,245
326.61	5,072	380	327.15	5,764	1,262
326.62	5,188	389	327.16	5,764	1,280
326.63	5,303	398	327.17	5,764	1,297
326.64	5,418	406	327.18	5,764	1,314
326.65	5,533	415	327.19	5,764	1,331
326.66	5,649	424	327.20	5,764	1,349
Top of Dam El.	326.67	5,764	327.21	5,764	1,366
326.68	5,764	450	327.22	5,764	1,383
326.69	5,764	467	327.23	5,764	1,401
326.70	5,764	484	327.24	5,764	1,418

Stage-Area-Storage for Pond 33P: BMP #3B (South) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
327.25	5,764	1,435
327.26	5,764	1,453
327.27	5,764	1,470
327.28	5,764	1,487
327.29	5,764	1,504
327.30	5,764	1,522
327.31	5,764	1,539
327.32	5,764	1,556
327.33	5,764	1,574
327.34	5,764	1,591
327.35	5,764	1,608
327.36	5,764	1,625
327.37	5,764	1,643
327.38	5,764	1,660
327.39	5,764	1,677
327.40	5,764	1,695
327.41	5,764	1,712
327.42	5,764	1,729
327.43	5,764	1,746
327.44	5,764	1,764
327.45	5,764	1,781
327.46	5,764	1,798
327.47	5,764	1,816
327.48	5,764	1,833
327.49	5,764	1,850
327.50	5,764	1,868
327.51	5,764	1,885
327.52	5,764	1,902
327.53	5,764	1,919
327.54	5,764	1,937
327.55	5,764	1,954
327.56	5,764	1,971
327.57	5,764	1,989
327.58	5,764	2,006
327.59	5,764	2,023
327.60	5,764	2,040
327.61	5,764	2,058
327.62	5,764	2,075
327.63	5,764	2,092
327.64	5,764	2,110
327.65	5,764	2,127
327.66	5,764	2,144
327.67	5,764	2,162

Hydrograph for Pond 33P: BMP #3B (South)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.00	0	326.17	0.00	0.00	0.00
10.05	0.00	1	326.17	0.00	0.00	0.00
10.10	0.00	1	326.17	0.00	0.00	0.00
10.15	0.00	2	326.17	0.00	0.00	0.00
10.20	0.00	2	326.17	0.00	0.00	0.00
10.25	0.00	2	326.17	0.00	0.00	0.00
10.30	0.01	2	326.17	0.00	0.00	0.00
10.35	0.01	3	326.17	0.00	0.00	0.00
10.40	0.01	3	326.17	0.00	0.00	0.00
10.45	0.01	3	326.17	0.00	0.00	0.00
10.50	0.01	3	326.17	0.01	0.01	0.00
10.55	0.01	3	326.17	0.01	0.01	0.00
10.60	0.01	3	326.17	0.01	0.01	0.00
10.65	0.01	3	326.17	0.01	0.01	0.00
10.70	0.01	3	326.17	0.01	0.01	0.00
10.75	0.01	4	326.17	0.01	0.01	0.00
10.80	0.01	4	326.17	0.01	0.01	0.00
10.85	0.01	4	326.17	0.01	0.01	0.00
10.90	0.01	4	326.17	0.01	0.01	0.00
10.95	0.01	4	326.17	0.01	0.01	0.00
11.00	0.01	4	326.18	0.01	0.01	0.00
11.05	0.01	5	326.18	0.01	0.01	0.00
11.10	0.01	5	326.18	0.01	0.01	0.00
11.15	0.01	5	326.18	0.01	0.01	0.00
11.20	0.01	5	326.18	0.01	0.01	0.00
11.25	0.01	5	326.18	0.01	0.01	0.00
11.30	0.01	6	326.18	0.01	0.01	0.00
11.35	0.01	6	326.18	0.01	0.01	0.00
11.40	0.01	6	326.18	0.01	0.01	0.00
11.45	0.01	7	326.18	0.01	0.01	0.00
11.50	0.01	7	326.18	0.01	0.01	0.00
11.55	0.02	8	326.18	0.01	0.01	0.00
11.60	0.03	9	326.18	0.02	0.02	0.00
11.65	0.04	12	326.18	0.02	0.02	0.00
11.70	0.06	16	326.19	0.03	0.03	0.00
11.75	0.07	22	326.19	0.04	0.04	0.00
11.80	0.09	29	326.20	0.05	0.05	0.00
11.85	0.13	38	326.21	0.07	0.07	0.00
11.90	0.17	51	326.23	0.09	0.09	0.00
11.95	0.21	67	326.25	0.12	0.12	0.00
12.00	0.18	79	326.26	0.14	0.14	0.00
12.05	0.09	79	326.26	0.14	0.14	0.00
12.10	0.05	69	326.25	0.12	0.12	0.00
12.15	0.03	56	326.24	0.10	0.10	0.00
12.20	0.03	46	326.22	0.08	0.08	0.00
12.25	0.02	37	326.21	0.06	0.06	0.00
12.30	0.02	31	326.21	0.05	0.05	0.00
12.35	0.02	26	326.20	0.05	0.05	0.00
12.40	0.02	22	326.20	0.04	0.04	0.00
12.45	0.02	19	326.19	0.03	0.03	0.00
12.50	0.02	17	326.19	0.03	0.03	0.00
12.55	0.01	14	326.19	0.02	0.02	0.00
12.60	0.01	13	326.18	0.02	0.02	0.00
12.65	0.01	11	326.18	0.02	0.02	0.00

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

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Hydrograph for Pond 33P: BMP #3B (South) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.01	10	326.18	0.02	0.02	0.00
12.75	0.01	9	326.18	0.02	0.02	0.00
12.80	0.01	9	326.18	0.01	0.01	0.00
12.85	0.01	8	326.18	0.01	0.01	0.00
12.90	0.01	8	326.18	0.01	0.01	0.00
12.95	0.01	7	326.18	0.01	0.01	0.00
13.00	0.01	7	326.18	0.01	0.01	0.00
13.05	0.01	6	326.18	0.01	0.01	0.00
13.10	0.01	6	326.18	0.01	0.01	0.00
13.15	0.01	6	326.18	0.01	0.01	0.00
13.20	0.01	6	326.18	0.01	0.01	0.00
13.25	0.01	6	326.18	0.01	0.01	0.00
13.30	0.01	5	326.18	0.01	0.01	0.00
13.35	0.01	5	326.18	0.01	0.01	0.00
13.40	0.01	5	326.18	0.01	0.01	0.00
13.45	0.01	5	326.18	0.01	0.01	0.00
13.50	0.01	5	326.18	0.01	0.01	0.00
13.55	0.01	5	326.18	0.01	0.01	0.00
13.60	0.01	5	326.18	0.01	0.01	0.00
13.65	0.01	4	326.18	0.01	0.01	0.00
13.70	0.01	4	326.17	0.01	0.01	0.00
13.75	0.01	4	326.17	0.01	0.01	0.00
13.80	0.01	4	326.17	0.01	0.01	0.00
13.85	0.01	4	326.17	0.01	0.01	0.00
13.90	0.01	4	326.17	0.01	0.01	0.00
13.95	0.01	4	326.17	0.01	0.01	0.00
14.00	0.01	4	326.17	0.01	0.01	0.00
14.05	0.01	4	326.17	0.01	0.01	0.00
14.10	0.01	4	326.17	0.01	0.01	0.00
14.15	0.01	3	326.17	0.01	0.01	0.00
14.20	0.01	3	326.17	0.01	0.01	0.00
14.25	0.01	3	326.17	0.01	0.01	0.00
14.30	0.01	3	326.17	0.01	0.01	0.00
14.35	0.01	3	326.17	0.01	0.01	0.00
14.40	0.01	3	326.17	0.01	0.01	0.00
14.45	0.01	3	326.17	0.01	0.01	0.00
14.50	0.01	3	326.17	0.01	0.01	0.00
14.55	0.01	3	326.17	0.01	0.01	0.00
14.60	0.01	3	326.17	0.01	0.01	0.00
14.65	0.01	3	326.17	0.01	0.01	0.00
14.70	0.00	3	326.17	0.01	0.01	0.00
14.75	0.00	3	326.17	0.01	0.01	0.00
14.80	0.00	3	326.17	0.01	0.01	0.00
14.85	0.00	3	326.17	0.01	0.01	0.00
14.90	0.00	3	326.17	0.00	0.00	0.00
14.95	0.00	3	326.17	0.00	0.00	0.00
15.00	0.00	3	326.17	0.00	0.00	0.00

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration BMP #4A (Sta. 2073+50 to Sta. 2089+00)**

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes	Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
1.39 ac	A = Area draining to the practice	
1.39 ac	A_I = Impervious area draining to the practice	
1.00 decimal	I = percent impervious area draining to the practice, in decimal form	
0.95 unitless	$Rv = \text{Runoff coefficient} = 0.05 + (0.9 \times I)$	
1.32 ac-in	$WQV = 1'' \times Rv \times A$	
4,793 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
1,198 cf	25% x WQV (check calc for sediment forebay volume)	
<u>None</u>	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V_{SED} = sediment forebay volume, if used for pretreatment	$\leftarrow \geq 25\% WQV$
2,003 cf	V = volume ¹ (attach a stage-storage table)	$\leftarrow \geq WQV$
15,810 sf	A_{SA} = surface area of the bottom of the pond	
0.70 iph	I_{DESIGN} = design infiltration rate ²	
2.2 hours	$T_{DRAIN} = \text{drain time} = V / (A_{SA} * I_{DESIGN})$	$\leftarrow \leq 72\text{-hrs}$
293.82 feet	E_{BTM} = elevation of the bottom of the practice	
291.00 feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
281.60 feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
2.82 feet	D_{SHWT} = separation from SHWT ³	$\leftarrow \geq *^3$
12.2 feet	D_{ROCK} = separation from bedrock ³	$\leftarrow \geq *^3$
ft	D_T = depth of trench, if trench proposed	$\leftarrow 4 - 10\text{ ft}$
No Yes/No	If a trench or underground system is proposed, observation well provided	
Stone	If a trench is proposed, material in trench	
N/A	If a basin is proposed, basin floor material	
N/A Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
N/A :1	If a basin is proposed, pond side slopes	$\leftarrow \geq 3:1$
294.77 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
295.16 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
295.32 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation \leq Elevation of the top of the trench?	\leftarrow yes
YES	If a basin is proposed, 50-year peak elevation \leq Elevation of berm?	\leftarrow yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Peak elevations for the 10 year and 50 year storm events assume infiltration is no longer occurring and stormwater within the BMP is flowing to the transverse drains at the low points.

Infiltration rates were determined from NRCS Ksat values for the soil type.

Bedrock elevation was determined from ledge lines on cross sections.

SHWT elevation represents OHW of the Connecticut River. There is no nearby subsurface data.

Stage-Area-Storage for Pond 37P: BMP #4A (South)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
293.82	0	0	294.36	5,842	473
293.83	108	0	294.37	5,950	491
293.84	216	1	294.38	6,058	509
293.85	325	1	294.39	6,167	527
293.86	433	3	294.40	6,275	546
293.87	541	4	294.41	6,383	565
293.88	649	6	294.42	6,491	584
293.89	757	8	294.43	6,599	604
293.90	865	10	294.44	6,707	624
293.91	974	13	294.45	6,816	644
293.92	1,082	16	294.46	6,924	665
293.93	1,190	20	294.47	7,032	686
293.94	1,298	23	294.48	7,140	707
293.95	1,406	27	294.49	7,248	728
293.96	1,515	32	294.50	7,357	750
293.97	1,623	37	294.51	7,465	773
293.98	1,731	42	294.52	7,573	795
293.99	1,839	47	294.53	7,681	818
294.00	1,947	53	294.54	7,789	841
294.01	2,056	59	294.55	7,898	865
294.02	2,164	65	294.56	8,006	889
294.03	2,272	72	294.57	8,114	913
294.04	2,380	79	294.58	8,222	937
294.05	2,488	86	294.59	8,330	962
294.06	2,596	93	294.60	8,438	987
294.07	2,705	101	294.61	8,547	1,013
294.08	2,813	110	294.62	8,655	1,039
294.09	2,921	118	294.63	8,763	1,065
294.10	3,029	127	294.64	8,871	1,091
294.11	3,137	136	294.65	8,979	1,118
294.12	3,246	146	294.66	9,088	1,145
294.13	3,354	156	294.67	9,196	1,172
294.14	3,462	166	294.68	9,304	1,200
294.15	3,570	177	294.69	9,412	1,228
294.16	3,678	188	294.70	9,520	1,257
294.17	3,786	199	294.71	9,628	1,285
294.18	3,895	210	294.72	9,737	1,314
294.19	4,003	222	294.73	9,845	1,344
294.20	4,111	234	294.74	9,953	1,374
294.21	4,219	247	294.75	10,061	1,404
294.22	4,327	260	294.76	10,169	1,434
294.23	4,436	273	294.77	10,278	1,465
294.24	4,544	286	294.78	10,386	1,496
294.25	4,652	300	294.79	10,494	1,527
294.26	4,760	314	294.80	10,602	1,559
294.27	4,868	329	294.81	10,710	1,590
294.28	4,977	343	294.82	10,819	1,623
294.29	5,085	358	294.83	10,927	1,655
294.30	5,193	374	294.84	11,035	1,688
294.31	5,301	390	294.85	11,143	1,722
294.32	5,409	406	294.86	11,251	1,755
294.33	5,517	422	294.87	11,359	1,789
294.34	5,626	439	294.88	11,468	1,823
294.35	5,734	456	294.89	11,576	1,858

Max. El. of
WQV in
BMP #4A
South Cell

Stage-Area-Storage for Pond 37P: BMP #4A (South) (continued)

Top of Dam El.	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
	294.90	11,684	1,893
	294.91	11,781	1,928
	294.92	11,879	1,963
	294.93	11,977	1,999
	294.94	12,074	2,035
	294.95	12,172	2,072
	294.96	12,269	2,108
	294.97	12,366	2,145
	294.98	12,464	2,183
	294.99	12,562	2,220
	295.00	12,659	2,258
	295.01	12,757	2,296
	295.02	12,854	2,334
	295.03	12,951	2,373
	295.04	13,049	2,412
	295.05	13,147	2,451
	295.06	13,244	2,491
	295.07	13,342	2,531
	295.08	13,439	2,571
	295.09	13,536	2,612
	295.10	13,634	2,652
	295.11	13,732	2,693
	295.12	13,829	2,735
	295.13	13,927	2,776
	295.14	14,024	2,818
	295.15	14,121	2,861
	295.16	14,219	2,903
	295.17	14,317	2,946
	295.18	14,414	2,989
	295.19	14,512	3,032
	295.20	14,609	3,076
	295.21	14,706	3,120
	295.22	14,804	3,164
	295.23	14,902	3,209
	295.24	14,999	3,254
	295.25	15,097	3,299
	295.26	15,194	3,344
	295.27	15,291	3,390
	295.28	15,389	3,436
	295.29	15,487	3,482
	295.30	15,584	3,529
	295.31	15,682	3,576
	295.32	15,779	3,623

Stage-Area-Storage for Pond 38P: BMP #4A (North)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
293.82	0	0	294.36	7,079	606
293.83	139	0	294.37	7,111	627
293.84	278	1	294.38	7,142	648
293.85	417	2	294.39	7,174	670
293.86	556	3	294.40	7,205	691
293.87	695	5	294.41	7,236	713
293.88	834	8	294.42	7,268	735
293.89	974	10	294.43	7,299	757
293.90	1,113	13	294.44	7,330	779
293.91	1,252	17	294.45	7,362	801
293.92	1,391	21	294.46	7,393	823
293.93	1,530	25	294.47	7,424	845
293.94	1,669	30	294.48	7,456	867
293.95	1,808	35	294.49	7,487	890
293.96	1,947	41	294.50	7,518	912
293.97	2,086	47	294.51	7,550	935
293.98	2,225	53	294.52	7,581	958
293.99	2,364	60	294.53	7,613	980
294.00	2,503	68	294.54	7,644	1,003
294.01	2,643	75	294.55	7,675	1,026
294.02	2,782	83	294.56	7,707	1,049
294.03	2,921	92	294.57	7,738	1,073
294.04	3,060	101	294.58	7,769	1,096
294.05	3,199	110	294.59	7,801	1,119
294.06	3,338	120	294.60	7,832	1,143
294.07	3,477	130	294.61	7,863	1,166
294.08	3,616	141	294.62	7,895	1,190
294.09	3,755	152	294.63	7,926	1,213
294.10	3,894	164	294.64	7,958	1,237
Max. El. of WQV in BMP #4A North Cell	294.11	4,033	294.65	7,989	1,261
	294.12	4,172	294.66	8,020	1,285
	294.13	4,311	294.67	8,052	1,309
	294.14	4,451	294.68	8,083	1,334
Top of Dam El.	294.15	4,590	294.69	8,114	1,358
	294.16	4,729	294.70	8,146	1,382
	294.17	4,868	294.71	8,177	1,407
	294.18	5,007	294.72	8,208	1,431
	294.19	5,146	294.73	8,240	1,456
	294.20	5,285	294.74	8,271	1,481
	294.21	5,424	294.75	8,302	1,506
	294.22	5,563	294.76	8,334	1,531
	294.23	5,702	294.77	8,365	1,556
	294.24	5,841	294.78	8,397	1,581
	294.25	5,980	294.79	8,428	1,606
	294.26	6,120	294.80	8,459	1,631
	294.27	6,259	294.81	8,491	1,657
	294.28	6,398	294.82	8,522	1,682
	294.29	6,537	294.83	8,522	1,708
	294.30	6,676	294.84	8,522	1,733
	294.31	6,815	294.85	8,522	1,759
	294.32	6,954	294.86	8,522	1,785
	294.33	6,985	294.87	8,522	1,810
	294.34	7,017	294.88	8,522	1,836
	294.35	7,048	294.89	8,522	1,861

Stage-Area-Storage for Pond 38P: BMP #4A (North) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
294.90	8,522	1,887
294.91	8,522	1,912
294.92	8,522	1,938
294.93	8,522	1,963
294.94	8,522	1,989
294.95	8,522	2,015
294.96	8,522	2,040
294.97	8,522	2,066
294.98	8,522	2,091
294.99	8,522	2,117
295.00	8,522	2,142
295.01	8,522	2,168
295.02	8,522	2,194
295.03	8,522	2,219
295.04	8,522	2,245
295.05	8,522	2,270
295.06	8,522	2,296
295.07	8,522	2,321
295.08	8,522	2,347
295.09	8,522	2,373
295.10	8,522	2,398
295.11	8,522	2,424
295.12	8,522	2,449
295.13	8,522	2,475
295.14	8,522	2,500
295.15	8,522	2,526
295.16	8,522	2,551
295.17	8,522	2,577
295.18	8,522	2,603
295.19	8,522	2,628
295.20	8,522	2,654
295.21	8,522	2,679
295.22	8,522	2,705
295.23	8,522	2,730
295.24	8,522	2,756
295.25	8,522	2,782
295.26	8,522	2,807
295.27	8,522	2,833
295.28	8,522	2,858
295.29	8,522	2,884
295.30	8,522	2,909
295.31	8,522	2,935
295.32	8,522	2,961

Hydrograph for Pond 37P: BMP #4A (South)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.04	3	293.86	0.01	0.01	0.00
10.05	0.04	8	293.89	0.01	0.01	0.00
10.10	0.04	12	293.91	0.02	0.02	0.00
10.15	0.04	17	293.92	0.02	0.02	0.00
10.20	0.04	21	293.93	0.02	0.02	0.00
10.25	0.04	25	293.94	0.02	0.02	0.00
10.30	0.05	29	293.95	0.02	0.02	0.00
10.35	0.05	33	293.96	0.02	0.02	0.00
10.40	0.05	37	293.97	0.03	0.03	0.00
10.45	0.05	41	293.98	0.03	0.03	0.00
10.50	0.05	45	293.99	0.03	0.03	0.00
10.55	0.05	49	293.99	0.03	0.03	0.00
10.60	0.05	53	294.00	0.03	0.03	0.00
10.65	0.06	57	294.01	0.03	0.03	0.00
10.70	0.06	62	294.01	0.03	0.03	0.00
10.75	0.06	66	294.02	0.04	0.04	0.00
10.80	0.06	71	294.03	0.04	0.04	0.00
10.85	0.07	76	294.04	0.04	0.04	0.00
10.90	0.07	81	294.04	0.04	0.04	0.00
10.95	0.07	87	294.05	0.04	0.04	0.00
11.00	0.07	93	294.06	0.04	0.04	0.00
11.05	0.08	99	294.07	0.04	0.04	0.00
11.10	0.08	105	294.07	0.04	0.04	0.00
11.15	0.09	112	294.08	0.05	0.05	0.00
11.20	0.09	120	294.09	0.05	0.05	0.00
11.25	0.10	128	294.10	0.05	0.05	0.00
11.30	0.10	137	294.11	0.05	0.05	0.00
11.35	0.11	147	294.12	0.05	0.05	0.00
11.40	0.12	158	294.13	0.05	0.05	0.00
11.45	0.12	169	294.14	0.06	0.06	0.00
11.50	0.13	182	294.15	0.06	0.06	0.00
11.55	0.15	196	294.17	0.06	0.06	0.00
11.60	0.22	217	294.19	0.06	0.06	0.00
11.65	0.35	257	294.22	0.07	0.07	0.00
11.70	0.49	319	294.26	0.08	0.08	0.00
11.75	0.64	405	294.32	0.09	0.09	0.00
11.80	0.82	520	294.39	0.10	0.10	0.00
11.85	1.12	675	294.46	0.11	0.11	0.00
11.90	1.53	891	294.56	0.13	0.13	0.00
11.95	1.86	1,171	294.67	0.15	0.15	0.00
12.00	1.56	1,451	294.77	0.17	0.17	0.00
12.05	0.84	1,636	294.82	0.18	0.18	0.00
12.10	0.40	1,715	294.85	0.18	0.18	0.00
12.15	0.28	1,744	294.86	0.18	0.18	0.00
12.20	0.24	1,757	294.86	0.18	0.18	0.00
12.25	0.22	1,765	294.86	0.18	0.18	0.00
12.30	0.20	1,769	294.86	0.18	0.18	0.00
12.35	0.19	1,771	294.86	0.18	0.18	0.00
12.40	0.17	1,770	294.86	0.18	0.18	0.00
12.45	0.15	1,766	294.86	0.18	0.18	0.00
12.50	0.14	1,760	294.86	0.18	0.18	0.00
12.55	0.13	1,751	294.86	0.18	0.18	0.00
12.60	0.12	1,740	294.86	0.18	0.18	0.00
12.65	0.11	1,728	294.85	0.18	0.18	0.00

Hydrograph for Pond 37P: BMP #4A (South) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.11	1,715	294.85	0.18	0.18	0.00
12.75	0.10	1,702	294.84	0.18	0.18	0.00
12.80	0.10	1,688	294.84	0.18	0.18	0.00
12.85	0.10	1,674	294.84	0.18	0.18	0.00
12.90	0.09	1,659	294.83	0.18	0.18	0.00
12.95	0.09	1,644	294.83	0.18	0.18	0.00
13.00	0.09	1,628	294.82	0.18	0.18	0.00
13.05	0.08	1,612	294.82	0.17	0.17	0.00
13.10	0.08	1,596	294.81	0.17	0.17	0.00
13.15	0.08	1,579	294.81	0.17	0.17	0.00
13.20	0.08	1,562	294.80	0.17	0.17	0.00
13.25	0.08	1,545	294.80	0.17	0.17	0.00
13.30	0.07	1,527	294.79	0.17	0.17	0.00
13.35	0.07	1,510	294.78	0.17	0.17	0.00
13.40	0.07	1,492	294.78	0.17	0.17	0.00
13.45	0.07	1,475	294.77	0.17	0.17	0.00
13.50	0.07	1,457	294.77	0.17	0.17	0.00
13.55	0.06	1,439	294.76	0.17	0.17	0.00
13.60	0.06	1,420	294.76	0.16	0.16	0.00
13.65	0.06	1,402	294.75	0.16	0.16	0.00
13.70	0.06	1,384	294.74	0.16	0.16	0.00
13.75	0.06	1,365	294.74	0.16	0.16	0.00
13.80	0.06	1,347	294.73	0.16	0.16	0.00
13.85	0.06	1,329	294.72	0.16	0.16	0.00
13.90	0.05	1,310	294.72	0.16	0.16	0.00
13.95	0.05	1,291	294.71	0.16	0.16	0.00
14.00	0.05	1,273	294.71	0.16	0.16	0.00
14.05	0.05	1,254	294.70	0.15	0.15	0.00
14.10	0.05	1,236	294.69	0.15	0.15	0.00
14.15	0.05	1,217	294.69	0.15	0.15	0.00
14.20	0.05	1,199	294.68	0.15	0.15	0.00
14.25	0.05	1,180	294.67	0.15	0.15	0.00
14.30	0.05	1,162	294.67	0.15	0.15	0.00
14.35	0.05	1,144	294.66	0.15	0.15	0.00
14.40	0.05	1,126	294.65	0.15	0.15	0.00
14.45	0.05	1,108	294.65	0.14	0.14	0.00
14.50	0.05	1,091	294.64	0.14	0.14	0.00
14.55	0.05	1,073	294.63	0.14	0.14	0.00
14.60	0.04	1,056	294.63	0.14	0.14	0.00
14.65	0.04	1,039	294.62	0.14	0.14	0.00
14.70	0.04	1,021	294.61	0.14	0.14	0.00
14.75	0.04	1,004	294.61	0.14	0.14	0.00
14.80	0.04	987	294.60	0.14	0.14	0.00
14.85	0.04	971	294.59	0.14	0.14	0.00
14.90	0.04	954	294.59	0.13	0.13	0.00
14.95	0.04	937	294.58	0.13	0.13	0.00
15.00	0.04	921	294.57	0.13	0.13	0.00

Hydrograph for Pond 38P: BMP #4A (North)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.01	0	293.83	0.00	0.00	0.00
10.05	0.01	1	293.84	0.00	0.00	0.00
10.10	0.01	1	293.84	0.01	0.01	0.00
10.15	0.01	1	293.85	0.01	0.01	0.00
10.20	0.01	2	293.85	0.01	0.01	0.00
10.25	0.01	2	293.85	0.01	0.01	0.00
10.30	0.01	2	293.85	0.01	0.01	0.00
10.35	0.01	2	293.85	0.01	0.01	0.00
10.40	0.01	2	293.85	0.01	0.01	0.00
10.45	0.01	2	293.85	0.01	0.01	0.00
10.50	0.01	2	293.85	0.01	0.01	0.00
10.55	0.01	3	293.85	0.01	0.01	0.00
10.60	0.01	3	293.86	0.01	0.01	0.00
10.65	0.01	3	293.86	0.01	0.01	0.00
10.70	0.01	3	293.86	0.01	0.01	0.00
10.75	0.01	3	293.86	0.01	0.01	0.00
10.80	0.01	4	293.86	0.01	0.01	0.00
10.85	0.01	4	293.86	0.01	0.01	0.00
10.90	0.01	4	293.86	0.01	0.01	0.00
10.95	0.01	4	293.87	0.01	0.01	0.00
11.00	0.01	5	293.87	0.01	0.01	0.00
11.05	0.01	5	293.87	0.01	0.01	0.00
11.10	0.01	5	293.87	0.01	0.01	0.00
11.15	0.01	6	293.87	0.01	0.01	0.00
11.20	0.02	6	293.87	0.01	0.01	0.00
11.25	0.02	7	293.88	0.01	0.01	0.00
11.30	0.02	8	293.88	0.01	0.01	0.00
11.35	0.02	8	293.88	0.01	0.01	0.00
11.40	0.02	9	293.89	0.01	0.01	0.00
11.45	0.02	10	293.89	0.02	0.02	0.00
11.50	0.02	11	293.89	0.02	0.02	0.00
11.55	0.02	12	293.90	0.02	0.02	0.00
11.60	0.04	14	293.90	0.02	0.02	0.00
11.65	0.06	19	293.92	0.02	0.02	0.00
11.70	0.08	27	293.93	0.03	0.03	0.00
11.75	0.11	39	293.96	0.03	0.03	0.00
11.80	0.14	55	293.98	0.04	0.04	0.00
11.85	0.19	76	294.01	0.04	0.04	0.00
11.90	0.25	107	294.05	0.05	0.05	0.00
11.95	0.31	148	294.09	0.06	0.06	0.00
12.00	0.26	187	294.12	0.07	0.07	0.00
12.05	0.14	210	294.14	0.07	0.07	0.00
12.10	0.07	216	294.14	0.07	0.07	0.00
12.15	0.05	213	294.14	0.07	0.07	0.00
12.20	0.04	208	294.14	0.07	0.07	0.00
12.25	0.04	202	294.13	0.07	0.07	0.00
12.30	0.03	195	294.13	0.07	0.07	0.00
12.35	0.03	189	294.12	0.07	0.07	0.00
12.40	0.03	182	294.12	0.07	0.07	0.00
12.45	0.03	175	294.11	0.07	0.07	0.00
12.50	0.02	168	294.10	0.06	0.06	0.00
12.55	0.02	160	294.10	0.06	0.06	0.00
12.60	0.02	153	294.09	0.06	0.06	0.00
12.65	0.02	145	294.08	0.06	0.06	0.00

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

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Hydrograph for Pond 38P: BMP #4A (North) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.02	138	294.08	0.06	0.06	0.00
12.75	0.02	131	294.07	0.06	0.06	0.00
12.80	0.02	124	294.06	0.05	0.05	0.00
12.85	0.02	117	294.06	0.05	0.05	0.00
12.90	0.02	111	294.05	0.05	0.05	0.00
12.95	0.01	104	294.04	0.05	0.05	0.00
13.00	0.01	98	294.04	0.05	0.05	0.00
13.05	0.01	92	294.03	0.05	0.05	0.00
13.10	0.01	86	294.02	0.05	0.05	0.00
13.15	0.01	80	294.02	0.04	0.04	0.00
13.20	0.01	75	294.01	0.04	0.04	0.00
13.25	0.01	69	294.00	0.04	0.04	0.00
13.30	0.01	64	294.00	0.04	0.04	0.00
13.35	0.01	60	293.99	0.04	0.04	0.00
13.40	0.01	55	293.98	0.04	0.04	0.00
13.45	0.01	51	293.98	0.04	0.04	0.00
13.50	0.01	46	293.97	0.03	0.03	0.00
13.55	0.01	42	293.96	0.03	0.03	0.00
13.60	0.01	39	293.96	0.03	0.03	0.00
13.65	0.01	35	293.95	0.03	0.03	0.00
13.70	0.01	32	293.94	0.03	0.03	0.00
13.75	0.01	29	293.94	0.03	0.03	0.00
13.80	0.01	26	293.93	0.02	0.02	0.00
13.85	0.01	23	293.93	0.02	0.02	0.00
13.90	0.01	21	293.92	0.02	0.02	0.00
13.95	0.01	18	293.91	0.02	0.02	0.00
14.00	0.01	16	293.91	0.02	0.02	0.00
14.05	0.01	14	293.90	0.02	0.02	0.00
14.10	0.01	12	293.90	0.02	0.02	0.00
14.15	0.01	11	293.89	0.02	0.02	0.00
14.20	0.01	10	293.89	0.02	0.02	0.00
14.25	0.01	8	293.88	0.01	0.01	0.00
14.30	0.01	7	293.88	0.01	0.01	0.00
14.35	0.01	6	293.87	0.01	0.01	0.00
14.40	0.01	6	293.87	0.01	0.01	0.00
14.45	0.01	5	293.87	0.01	0.01	0.00
14.50	0.01	4	293.87	0.01	0.01	0.00
14.55	0.01	4	293.86	0.01	0.01	0.00
14.60	0.01	4	293.86	0.01	0.01	0.00
14.65	0.01	3	293.86	0.01	0.01	0.00
14.70	0.01	3	293.86	0.01	0.01	0.00
14.75	0.01	3	293.86	0.01	0.01	0.00
14.80	0.01	3	293.86	0.01	0.01	0.00
14.85	0.01	3	293.85	0.01	0.01	0.00
14.90	0.01	2	293.85	0.01	0.01	0.00
14.95	0.01	2	293.85	0.01	0.01	0.00
15.00	0.01	2	293.85	0.01	0.01	0.00

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration BMP #5A (Sta. 2091+60 to Sta. 2099+10)**

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes	Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
0.68 ac	A = Area draining to the practice	
0.68 ac	A_I = Impervious area draining to the practice	
1.00 decimal	I = percent impervious area draining to the practice, in decimal form	
0.95 unitless	$Rv = \text{Runoff coefficient} = 0.05 + (0.9 \times I)$	
0.65 ac-in	$WQV = 1'' \times Rv \times A$	
2,345 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
586 cf	25% x WQV (check calc for sediment forebay volume)	
<u>None</u>	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V_{SED} = sediment forebay volume, if used for pretreatment	$\leftarrow \geq 25\% WQV$
717 cf	V = volume ¹ (attach a stage-storage table)	$\leftarrow \geq WQV$
6,925 sf	A_{SA} = surface area of the bottom of the pond	
1.70 iph	I_{DESIGN} = design infiltration rate ²	
0.7 hours	$T_{DRAIN} = V / (A_{SA} * I_{DESIGN})$	$\leftarrow \leq 72\text{-hrs}$
295.34 feet	E_{BTM} = elevation of the bottom of the practice	
291.00 feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
270.00 feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
4.34 feet	D_{SHWT} = separation from SHWT ³	$\leftarrow \geq *^3$
25.3 feet	D_{ROCK} = separation from bedrock ³	$\leftarrow \geq *^3$
ft	D_T = depth of trench, if trench proposed	$\leftarrow 4 - 10\text{ ft}$
No Yes/No	If a trench or underground system is proposed, observation well provided	
Stone	If a trench is proposed, material in trench	
N/A	If a basin is proposed, basin floor material	
N/A Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
N/A :1	If a basin is proposed, pond side slopes	$\leftarrow \geq 3:1$
295.97 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
296.23 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
296.84 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation \leq Elevation of the top of the trench?	\leftarrow yes
YES	If a basin is proposed, 50-year peak elevation \leq Elevation of berm?	\leftarrow yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Peak elevations for the 10 year and 50 year storm events assume infiltration is no longer occurring and stormwater within the BMP is flowing to the transverse drains at the low points.

Infiltration rates were determined from NRCS Ksat values for the soil type.

Bedrock elevation was determined from ledge lines on cross sections.

SHWT elevation represents OHW of the Connecticut River. There is no nearby subsurface data.

Stage-Area-Storage for Pond 41P: BMP #5A (North)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	
295.34	0	0	295.88	5,420	439	
295.35	100	0	295.89	5,520	455	
295.36	201	1	295.90	5,620	472	
295.37	301	1	295.91	5,721	489	
295.38	401	2	295.92	5,821	506	
295.39	502	4	295.93	5,921	524	
295.40	602	5	295.94	6,022	542	
295.41	703	7	295.95	6,122	560	
295.42	803	10	295.96	6,222	579	
295.43	903	12	295.97	6,323	598	
295.44	1,004	15	295.98	6,423	617	
295.45	1,104	18	295.99	6,523	636	
295.46	1,204	22	296.00	6,624	656	
295.47	1,305	25	296.01	6,724	676	
295.48	1,405	30	296.02	6,825	696	
295.49	1,505	34	296.03	6,925	717	
295.50	1,606	39	296.04	7,025	738	
295.51	1,706	44	296.05	7,126	759	
295.52	1,807	49	296.06	7,226	780	
295.53	1,907	54	296.07	7,326	802	
295.54	2,007	60	296.08	7,427	824	
295.55	2,108	66	296.09	7,527	847	
295.56	2,208	73	296.10	7,627	870	
295.57	2,308	80	296.11	7,728	893	
295.58	2,409	87	296.12	7,828	916	
295.59	2,509	94	296.13	7,929	940	
295.60	2,609	102	296.14	8,029	963	
295.61	2,710	110	296.15	8,129	988	
295.62	2,810	118	296.16	8,230	1,012	Top of Dam El.
295.63	2,910	127	296.17	8,330	1,037	
295.64	3,011	135	296.18	8,443	1,062	
295.65	3,111	145	296.19	8,556	1,088	
295.66	3,212	154	296.20	8,669	1,114	
295.67	3,312	164	296.21	8,782	1,140	
295.68	3,412	174	296.22	8,894	1,166	
295.69	3,513	184	296.23	9,007	1,193	
295.70	3,613	195	296.24	9,120	1,220	
295.71	3,713	206	296.25	9,233	1,248	
295.72	3,814	217	296.26	9,346	1,276	
295.73	3,914	229	296.27	9,459	1,304	
295.74	4,014	241	296.28	9,572	1,332	
295.75	4,115	253	296.29	9,685	1,361	
295.76	4,215	266	296.30	9,797	1,391	
295.77	4,316	278	296.31	9,910	1,420	
295.78	4,416	291	296.32	10,023	1,450	
295.79	4,516	305	296.33	10,136	1,480	
295.80	4,617	319	296.34	10,249	1,511	
295.81	4,717	333	296.35	10,355	1,542	
295.82	4,817	347	296.36	10,461	1,573	
295.83	4,918	361	296.37	10,567	1,605	
295.84	5,018	376	296.38	10,673	1,636	
295.85	5,118	392	296.39	10,779	1,669	
295.86	5,219	407	296.40	10,885	1,701	
295.87	5,319	423	296.41	10,990	1,734	

Stage-Area-Storage for Pond 41P: BMP #5A (North) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
296.42	11,096	1,767
296.43	11,202	1,800
296.44	11,308	1,834
296.45	11,414	1,868
296.46	11,520	1,903
296.47	11,626	1,937
296.48	11,732	1,972
296.49	11,838	2,008
296.50	11,944	2,043
296.51	12,050	2,079
296.52	12,156	2,116
296.53	12,261	2,152
296.54	12,367	2,189
296.55	12,473	2,227
296.56	12,579	2,264
296.57	12,685	2,302
296.58	12,791	2,340
296.59	12,897	2,379
296.60	13,003	2,418
296.61	13,109	2,457
296.62	13,215	2,496
296.63	13,321	2,536
296.64	13,427	2,576
296.65	13,533	2,617
296.66	13,638	2,657
296.67	13,744	2,699
296.68	13,850	2,740
296.69	13,956	2,782
296.70	14,062	2,824
296.71	14,168	2,866
296.72	14,274	2,909
296.73	14,380	2,952
296.74	14,486	2,995
296.75	14,592	3,039
296.76	14,698	3,082
296.77	14,804	3,127
296.78	14,909	3,171
296.79	15,015	3,216
296.80	15,121	3,261
296.81	15,227	3,307
296.82	15,333	3,353
296.83	15,439	3,399
296.84	15,545	3,445

Hydrograph for Pond 41P: BMP #5A (North)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.02	1	295.37	0.01	0.01	0.00
10.05	0.02	3	295.38	0.02	0.02	0.00
10.10	0.02	3	295.39	0.02	0.02	0.00
10.15	0.02	4	295.39	0.02	0.02	0.00
10.20	0.02	5	295.40	0.02	0.02	0.00
10.25	0.03	5	295.40	0.02	0.02	0.00
10.30	0.03	5	295.40	0.02	0.02	0.00
10.35	0.03	6	295.40	0.02	0.02	0.00
10.40	0.03	6	295.40	0.03	0.03	0.00
10.45	0.03	7	295.41	0.03	0.03	0.00
10.50	0.03	7	295.41	0.03	0.03	0.00
10.55	0.03	8	295.41	0.03	0.03	0.00
10.60	0.03	8	295.41	0.03	0.03	0.00
10.65	0.03	9	295.42	0.03	0.03	0.00
10.70	0.03	9	295.42	0.03	0.03	0.00
10.75	0.04	10	295.42	0.03	0.03	0.00
10.80	0.04	10	295.42	0.03	0.03	0.00
10.85	0.04	11	295.43	0.03	0.03	0.00
10.90	0.04	12	295.43	0.04	0.04	0.00
10.95	0.04	13	295.43	0.04	0.04	0.00
11.00	0.04	14	295.44	0.04	0.04	0.00
11.05	0.04	15	295.44	0.04	0.04	0.00
11.10	0.05	16	295.44	0.04	0.04	0.00
11.15	0.05	17	295.45	0.04	0.04	0.00
11.20	0.05	18	295.45	0.04	0.04	0.00
11.25	0.06	20	295.46	0.05	0.05	0.00
11.30	0.06	22	295.46	0.05	0.05	0.00
11.35	0.06	24	295.47	0.05	0.05	0.00
11.40	0.07	27	295.47	0.05	0.05	0.00
11.45	0.07	29	295.48	0.06	0.06	0.00
11.50	0.07	32	295.49	0.06	0.06	0.00
11.55	0.08	36	295.49	0.06	0.06	0.00
11.60	0.13	43	295.51	0.07	0.07	0.00
11.65	0.20	59	295.54	0.08	0.08	0.00
11.70	0.28	87	295.58	0.09	0.09	0.00
11.75	0.37	126	295.63	0.11	0.11	0.00
11.80	0.47	179	295.68	0.14	0.14	0.00
11.85	0.64	252	295.75	0.16	0.16	0.00
11.90	0.88	357	295.83	0.19	0.19	0.00
11.95	1.07	494	295.91	0.23	0.23	0.00
12.00	0.90	627	295.99	0.25	0.25	0.00
12.05	0.48	703	296.02	0.27	0.27	0.00
12.10	0.23	718	296.03	0.27	0.27	0.00
12.15	0.16	705	296.02	0.27	0.27	0.00
12.20	0.14	683	296.01	0.27	0.27	0.00
12.25	0.12	659	296.00	0.26	0.26	0.00
12.30	0.11	633	295.99	0.26	0.26	0.00
12.35	0.11	608	295.98	0.25	0.25	0.00
12.40	0.10	581	295.96	0.25	0.25	0.00
12.45	0.09	554	295.95	0.24	0.24	0.00
12.50	0.08	527	295.93	0.23	0.23	0.00
12.55	0.07	499	295.92	0.23	0.23	0.00
12.60	0.07	471	295.90	0.22	0.22	0.00
12.65	0.06	444	295.88	0.21	0.21	0.00

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

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Hydrograph for Pond 41P: BMP #5A (North) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.06	417	295.87	0.21	0.21	0.00
12.75	0.06	391	295.85	0.20	0.20	0.00
12.80	0.06	366	295.83	0.19	0.19	0.00
12.85	0.06	342	295.82	0.19	0.19	0.00
12.90	0.05	319	295.80	0.18	0.18	0.00
12.95	0.05	296	295.78	0.18	0.18	0.00
13.00	0.05	274	295.77	0.17	0.17	0.00
13.05	0.05	253	295.75	0.16	0.16	0.00
13.10	0.05	233	295.73	0.16	0.16	0.00
13.15	0.05	214	295.72	0.15	0.15	0.00
13.20	0.04	196	295.70	0.14	0.14	0.00
13.25	0.04	179	295.68	0.14	0.14	0.00
13.30	0.04	163	295.67	0.13	0.13	0.00
13.35	0.04	147	295.65	0.12	0.12	0.00
13.40	0.04	133	295.64	0.12	0.12	0.00
13.45	0.04	119	295.62	0.11	0.11	0.00
13.50	0.04	107	295.61	0.11	0.11	0.00
13.55	0.04	95	295.59	0.10	0.10	0.00
13.60	0.04	84	295.58	0.09	0.09	0.00
13.65	0.04	74	295.56	0.09	0.09	0.00
13.70	0.03	65	295.55	0.08	0.08	0.00
13.75	0.03	57	295.53	0.08	0.08	0.00
13.80	0.03	50	295.52	0.07	0.07	0.00
13.85	0.03	43	295.51	0.07	0.07	0.00
13.90	0.03	37	295.50	0.06	0.06	0.00
13.95	0.03	32	295.49	0.06	0.06	0.00
14.00	0.03	27	295.48	0.05	0.05	0.00
14.05	0.03	23	295.46	0.05	0.05	0.00
14.10	0.03	20	295.46	0.05	0.05	0.00
14.15	0.03	17	295.45	0.04	0.04	0.00
14.20	0.03	15	295.44	0.04	0.04	0.00
14.25	0.03	13	295.43	0.04	0.04	0.00
14.30	0.03	12	295.43	0.03	0.03	0.00
14.35	0.03	10	295.42	0.03	0.03	0.00
14.40	0.03	10	295.42	0.03	0.03	0.00
14.45	0.03	9	295.42	0.03	0.03	0.00
14.50	0.03	8	295.41	0.03	0.03	0.00
14.55	0.03	8	295.41	0.03	0.03	0.00
14.60	0.03	7	295.41	0.03	0.03	0.00
14.65	0.03	7	295.41	0.03	0.03	0.00
14.70	0.03	7	295.41	0.03	0.03	0.00
14.75	0.02	7	295.41	0.03	0.03	0.00
14.80	0.02	6	295.41	0.03	0.03	0.00
14.85	0.02	6	295.40	0.03	0.03	0.00
14.90	0.02	6	295.40	0.03	0.03	0.00
14.95	0.02	6	295.40	0.02	0.02	0.00
15.00	0.02	6	295.40	0.02	0.02	0.00

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration BMP #5B (Sta. 2099+10 to Sta. 2105+40)**

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes	Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
0.58 ac	A = Area draining to the practice	
0.58 ac	A_I = Impervious area draining to the practice	
1.00 decimal	I = percent impervious area draining to the practice, in decimal form	
0.95 unitless	$Rv = \text{Runoff coefficient} = 0.05 + (0.9 \times I)$	
0.55 ac-in	$WQV = 1'' \times Rv \times A$	
2,000 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
500 cf	25% x WQV (check calc for sediment forebay volume)	
<u>None</u>	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V_{SED} = sediment forebay volume, if used for pretreatment	$\leftarrow \geq 25\%WQV$
485 cf	V = volume ¹ (attach a stage-storage table)	$\leftarrow \geq WQV$
9,241 sf	A_{SA} = surface area of the bottom of the pond	
1.70 iph	I_{DESIGN} = design infiltration rate ²	
0.4 hours	$T_{DRAIN} = \text{drain time} = V / (A_{SA} * I_{DESIGN})$	$\leftarrow \leq 72\text{-hrs}$
296.79 feet	E_{BTM} = elevation of the bottom of the practice	
290.20 feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
260.00 feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
6.59 feet	D_{SHWT} = separation from SHWT ³	$\leftarrow \geq *^3$
36.8 feet	D_{ROCK} = separation from bedrock ³	$\leftarrow \geq *^3$
ft	D_T = depth of trench, if trench proposed	$\leftarrow 4 - 10\text{ ft}$
No Yes/No	If a trench or underground system is proposed, observation well provided	
Stone	If a trench is proposed, material in trench	
N/A	If a basin is proposed, basin floor material	
N/A Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
N/A :1	If a basin is proposed, pond side slopes	$\leftarrow \geq 3:1$
297.41 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
297.59 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
298.29 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation \leq Elevation of the top of the trench?	$\leftarrow \text{yes}$
YES	If a basin is proposed, 50-year peak elevation \leq Elevation of berm?	$\leftarrow \text{yes}$

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Peak elevations for the 10 year and 50 year storm events assume infiltration is no longer occurring and stormwater within the BMP is flowing to the transverse drains at the low points.

Infiltration rates were determined from NRCS Ksat values for the soil type.

Bedrock elevation is below the cross section grid. The lowest elevation on the grid was entered.

SHWT elevation was determined from nearest boring.

Stage-Area-Storage for Pond 45P: BMP #5B (South)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
296.79	0	0	297.33	8,669	711
296.80	163	0	297.34	8,802	737
296.81	325	1	297.35	8,936	764
296.82	488	2	297.36	9,069	791
296.83	651	4	297.37	9,202	818
296.84	814	6	297.38	9,336	846
296.85	976	9	297.39	9,469	874
296.86	1,139	12	297.40	9,602	903
296.87	1,302	16	297.41	9,735	932
296.88	1,464	20	297.42	9,869	961
296.89	1,627	24	297.43	10,002	991
296.90	1,790	30	297.44	10,135	1,021
296.91	1,953	35	297.45	10,268	1,052
296.92	2,115	41	297.46	10,402	1,083
296.93	2,278	48	297.47	10,535	1,114
296.94	2,441	55	297.48	10,668	1,146
296.95	2,604	62	297.49	10,802	1,178
296.96	2,766	71	297.50	10,935	1,211
296.97	2,929	79	297.51	11,068	1,244
296.98	3,092	88	297.52	11,201	1,277
296.99	3,254	98	297.53	11,335	1,311
297.00	3,417	108	297.54	11,468	1,345
297.01	3,580	118	297.55	11,601	1,380
297.02	3,743	129	297.56	11,735	1,415
297.03	3,905	141	297.57	11,868	1,450
297.04	4,068	153	297.58	12,001	1,486
297.05	4,231	165	297.59	12,134	1,522
297.06	4,393	178	297.60	12,268	1,559
297.07	4,556	191	297.61	12,401	1,596
297.08	4,719	205	297.62	12,534	1,633
297.09	4,882	220	297.63	12,668	1,671
297.10	5,044	235	297.64	12,801	1,709
297.11	5,207	250	297.65	12,934	1,748
297.12	5,370	266	297.66	13,067	1,787
297.13	5,532	282	297.67	13,201	1,826
297.14	5,695	299	297.68	13,334	1,866
297.15	5,858	316	297.69	13,467	1,906
Max. El. of WQV in BMP #5B South Cell	297.16	6,021	334	297.70	13,600
	297.17	6,183	352	297.71	13,734
	297.18	6,346	371	297.72	13,867
	297.19	6,509	391	297.73	14,000
Top of Dam El.	297.20	6,672	410	297.74	14,134
	297.21	6,834	431	297.75	14,267
	297.22	6,997	451	297.76	14,400
	297.23	7,160	473	297.77	14,533
	297.24	7,322	494	297.78	14,667
	297.25	7,485	516	297.79	14,800
	297.26	7,648	539	297.80	14,887
	297.27	7,811	562	297.81	14,974
	297.28	7,973	586	297.82	15,061
	297.29	8,136	610	297.83	15,148
	297.30	8,269	635	297.84	15,235
	297.31	8,403	660	297.85	15,322
	297.32	8,536	685	297.86	15,409

Stage-Area-Storage for Pond 45P: BMP #5B (South) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
297.87	15,496	2,694
297.88	15,583	2,741
297.89	15,670	2,787
297.90	15,757	2,835
297.91	15,844	2,882
297.92	15,930	2,930
297.93	16,017	2,978
297.94	16,104	3,026
297.95	16,191	3,074
297.96	16,278	3,123
297.97	16,365	3,172
297.98	16,452	3,221
297.99	16,539	3,271
298.00	16,626	3,320
298.01	16,713	3,370
298.02	16,800	3,421
298.03	16,887	3,471
298.04	16,974	3,522
298.05	17,061	3,573
298.06	17,148	3,624
298.07	17,235	3,676
298.08	17,322	3,728
298.09	17,409	3,780
298.10	17,496	3,832
298.11	17,583	3,885
298.12	17,670	3,938
298.13	17,757	3,991
298.14	17,844	4,044
298.15	17,931	4,098
298.16	18,018	4,152
298.17	18,104	4,206
298.18	18,191	4,260
298.19	18,278	4,315
298.20	18,365	4,370
298.21	18,452	4,425
298.22	18,539	4,481
298.23	18,626	4,537
298.24	18,713	4,593
298.25	18,800	4,649
298.26	18,887	4,705
298.27	18,974	4,762
298.28	19,061	4,819
298.29	19,148	4,877

Stage-Area-Storage for Pond 46P: BMP #5B (North)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
296.79	0	0	297.33	5,940	517
296.80	119	0	297.34	5,940	535
296.81	238	1	297.35	5,940	552
296.82	356	2	297.36	5,940	570
296.83	475	3	297.37	5,940	588
296.84	594	4	297.38	5,940	606
296.85	713	6	297.39	5,940	624
296.86	832	9	297.40	5,940	642
296.87	950	11	297.41	5,940	659
296.88	1,069	14	297.42	5,940	677
296.89	1,188	18	297.43	5,940	695
296.90	1,307	22	297.44	5,940	713
296.91	1,426	26	297.45	5,940	731
296.92	1,544	30	297.46	5,940	748
296.93	1,663	35	297.47	5,940	766
296.94	1,782	40	297.48	5,940	784
296.95	1,901	46	297.49	5,940	802
296.96	2,020	51	297.50	5,940	820
296.97	2,138	58	297.51	5,940	838
296.98	2,257	64	297.52	5,940	855
296.99	2,376	71	297.53	5,940	873
297.00	2,495	79	297.54	5,940	891
297.01	2,614	86	297.55	5,940	909
Max. El. of WQV in BMP #5B North Cell	297.02	2,732	297.56	5,940	927
297.03	2,851	103	297.57	5,940	944
297.04	2,970	111	297.58	5,940	962
297.05	3,089	120	297.59	5,940	980
297.06	3,208	130	297.60	5,940	998
297.07	3,326	140	297.61	5,940	1,016
297.08	3,445	150	297.62	5,940	1,034
297.09	3,564	160	297.63	5,940	1,051
297.10	3,683	171	297.64	5,940	1,069
297.11	3,802	182	297.65	5,940	1,087
297.12	3,920	194	297.66	5,940	1,105
297.13	4,039	206	297.67	5,940	1,123
297.14	4,158	218	297.68	5,940	1,140
297.15	4,277	231	297.69	5,940	1,158
297.16	4,396	244	297.70	5,940	1,176
297.17	4,514	257	297.71	5,940	1,194
297.18	4,633	271	297.72	5,940	1,212
297.19	4,752	285	297.73	5,940	1,230
297.20	4,871	300	297.74	5,940	1,247
297.21	4,990	314	297.75	5,940	1,265
297.22	5,108	329	297.76	5,940	1,283
297.23	5,227	345	297.77	5,940	1,301
297.24	5,346	361	297.78	5,940	1,319
297.25	5,465	377	297.79	5,940	1,337
297.26	5,584	394	297.80	5,940	1,354
297.27	5,702	411	297.81	5,940	1,372
297.28	5,821	428	297.82	5,940	1,390
Top of Dam El.	297.29	5,940	297.83	5,940	1,408
297.30	5,940	463	297.84	5,940	1,426
297.31	5,940	481	297.85	5,940	1,443
297.32	5,940	499	297.86	5,940	1,461

Stage-Area-Storage for Pond 46P: BMP #5B (North) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
297.87	5,940	1,479
297.88	5,940	1,497
297.89	5,940	1,515
297.90	5,940	1,533
297.91	5,940	1,550
297.92	5,940	1,568
297.93	5,940	1,586
297.94	5,940	1,604
297.95	5,940	1,622
297.96	5,940	1,639
297.97	5,940	1,657
297.98	5,940	1,675
297.99	5,940	1,693
298.00	5,940	1,711
298.01	5,940	1,729
298.02	5,940	1,746
298.03	5,940	1,764
298.04	5,940	1,782
298.05	5,940	1,800
298.06	5,940	1,818
298.07	5,940	1,835
298.08	5,940	1,853
298.09	5,940	1,871
298.10	5,940	1,889
298.11	5,940	1,907
298.12	5,940	1,925
298.13	5,940	1,942
298.14	5,940	1,960
298.15	5,940	1,978
298.16	5,940	1,996
298.17	5,940	2,014
298.18	5,940	2,031
298.19	5,940	2,049
298.20	5,940	2,067
298.21	5,940	2,085
298.22	5,940	2,103
298.23	5,940	2,121
298.24	5,940	2,138
298.25	5,940	2,156
298.26	5,940	2,174
298.27	5,940	2,192
298.28	5,940	2,210
298.29	5,940	2,228

Hydrograph for Pond 45P: BMP #5B (South)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.01	0	296.80	0.01	0.01	0.00
10.05	0.01	1	296.81	0.01	0.01	0.00
10.10	0.01	1	296.81	0.01	0.01	0.00
10.15	0.02	1	296.81	0.01	0.01	0.00
10.20	0.02	2	296.81	0.02	0.02	0.00
10.25	0.02	2	296.81	0.02	0.02	0.00
10.30	0.02	2	296.82	0.02	0.02	0.00
10.35	0.02	2	296.82	0.02	0.02	0.00
10.40	0.02	2	296.82	0.02	0.02	0.00
10.45	0.02	2	296.82	0.02	0.02	0.00
10.50	0.02	2	296.82	0.02	0.02	0.00
10.55	0.02	2	296.82	0.02	0.02	0.00
10.60	0.02	2	296.82	0.02	0.02	0.00
10.65	0.02	2	296.82	0.02	0.02	0.00
10.70	0.02	3	296.82	0.02	0.02	0.00
10.75	0.02	3	296.82	0.02	0.02	0.00
10.80	0.02	3	296.83	0.02	0.02	0.00
10.85	0.02	3	296.83	0.02	0.02	0.00
10.90	0.03	4	296.83	0.02	0.02	0.00
10.95	0.03	4	296.83	0.03	0.03	0.00
11.00	0.03	4	296.83	0.03	0.03	0.00
11.05	0.03	4	296.83	0.03	0.03	0.00
11.10	0.03	5	296.83	0.03	0.03	0.00
11.15	0.03	5	296.84	0.03	0.03	0.00
11.20	0.03	6	296.84	0.03	0.03	0.00
11.25	0.04	6	296.84	0.03	0.03	0.00
11.30	0.04	7	296.84	0.03	0.03	0.00
11.35	0.04	8	296.85	0.04	0.04	0.00
11.40	0.04	9	296.85	0.04	0.04	0.00
11.45	0.05	10	296.85	0.04	0.04	0.00
11.50	0.05	11	296.86	0.04	0.04	0.00
11.55	0.05	12	296.86	0.04	0.04	0.00
11.60	0.08	16	296.87	0.05	0.05	0.00
11.65	0.13	24	296.89	0.06	0.06	0.00
11.70	0.18	39	296.92	0.08	0.08	0.00
11.75	0.24	60	296.95	0.10	0.10	0.00
11.80	0.30	89	296.98	0.12	0.12	0.00
11.85	0.41	129	297.02	0.15	0.15	0.00
11.90	0.57	188	297.07	0.18	0.18	0.00
11.95	0.69	266	297.12	0.21	0.21	0.00
12.00	0.58	339	297.16	0.24	0.24	0.00
12.05	0.31	375	297.18	0.25	0.25	0.00
12.10	0.15	371	297.18	0.25	0.25	0.00
12.15	0.10	350	297.17	0.24	0.24	0.00
12.20	0.09	324	297.15	0.23	0.23	0.00
12.25	0.08	298	297.14	0.22	0.22	0.00
12.30	0.07	272	297.12	0.21	0.21	0.00
12.35	0.07	248	297.11	0.20	0.20	0.00
12.40	0.06	224	297.09	0.19	0.19	0.00
12.45	0.06	201	297.08	0.18	0.18	0.00
12.50	0.05	178	297.06	0.17	0.17	0.00
12.55	0.05	157	297.04	0.16	0.16	0.00
12.60	0.04	137	297.03	0.15	0.15	0.00
12.65	0.04	118	297.01	0.14	0.14	0.00

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

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Hydrograph for Pond 45P: BMP #5B (South) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.04	101	296.99	0.13	0.13	0.00
12.75	0.04	86	296.98	0.12	0.12	0.00
12.80	0.04	72	296.96	0.11	0.11	0.00
12.85	0.04	59	296.95	0.10	0.10	0.00
12.90	0.03	49	296.93	0.09	0.09	0.00
12.95	0.03	39	296.92	0.08	0.08	0.00
13.00	0.03	32	296.90	0.07	0.07	0.00
13.05	0.03	25	296.89	0.06	0.06	0.00
13.10	0.03	19	296.88	0.06	0.06	0.00
13.15	0.03	15	296.87	0.05	0.05	0.00
13.20	0.03	12	296.86	0.04	0.04	0.00
13.25	0.03	9	296.85	0.04	0.04	0.00
13.30	0.03	8	296.85	0.04	0.04	0.00
13.35	0.03	6	296.84	0.03	0.03	0.00
13.40	0.03	5	296.84	0.03	0.03	0.00
13.45	0.03	5	296.83	0.03	0.03	0.00
13.50	0.02	4	296.83	0.03	0.03	0.00
13.55	0.02	4	296.83	0.03	0.03	0.00
13.60	0.02	4	296.83	0.02	0.02	0.00
13.65	0.02	3	296.83	0.02	0.02	0.00
13.70	0.02	3	296.83	0.02	0.02	0.00
13.75	0.02	3	296.83	0.02	0.02	0.00
13.80	0.02	3	296.82	0.02	0.02	0.00
13.85	0.02	3	296.82	0.02	0.02	0.00
13.90	0.02	3	296.82	0.02	0.02	0.00
13.95	0.02	3	296.82	0.02	0.02	0.00
14.00	0.02	2	296.82	0.02	0.02	0.00
14.05	0.02	2	296.82	0.02	0.02	0.00
14.10	0.02	2	296.82	0.02	0.02	0.00
14.15	0.02	2	296.82	0.02	0.02	0.00
14.20	0.02	2	296.82	0.02	0.02	0.00
14.25	0.02	2	296.82	0.02	0.02	0.00
14.30	0.02	2	296.82	0.02	0.02	0.00
14.35	0.02	2	296.82	0.02	0.02	0.00
14.40	0.02	2	296.82	0.02	0.02	0.00
14.45	0.02	2	296.82	0.02	0.02	0.00
14.50	0.02	2	296.82	0.02	0.02	0.00
14.55	0.02	2	296.82	0.02	0.02	0.00
14.60	0.02	2	296.82	0.02	0.02	0.00
14.65	0.02	2	296.82	0.02	0.02	0.00
14.70	0.02	2	296.82	0.02	0.02	0.00
14.75	0.02	2	296.82	0.02	0.02	0.00
14.80	0.02	2	296.82	0.02	0.02	0.00
14.85	0.02	2	296.81	0.02	0.02	0.00
14.90	0.02	2	296.81	0.02	0.02	0.00
14.95	0.02	2	296.81	0.02	0.02	0.00
15.00	0.02	2	296.81	0.02	0.02	0.00

Hydrograph for Pond 46P: BMP #5B (North)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.00	0	296.80	0.00	0.00	0.00
10.05	0.00	0	296.80	0.00	0.00	0.00
10.10	0.00	0	296.80	0.00	0.00	0.00
10.15	0.00	0	296.80	0.00	0.00	0.00
10.20	0.00	0	296.80	0.00	0.00	0.00
10.25	0.01	0	296.80	0.01	0.01	0.00
10.30	0.01	0	296.80	0.01	0.01	0.00
10.35	0.01	0	296.80	0.01	0.01	0.00
10.40	0.01	0	296.80	0.01	0.01	0.00
10.45	0.01	0	296.80	0.01	0.01	0.00
10.50	0.01	0	296.80	0.01	0.01	0.00
10.55	0.01	0	296.80	0.01	0.01	0.00
10.60	0.01	0	296.80	0.01	0.01	0.00
10.65	0.01	0	296.80	0.01	0.01	0.00
10.70	0.01	0	296.80	0.01	0.01	0.00
10.75	0.01	0	296.81	0.01	0.01	0.00
10.80	0.01	0	296.81	0.01	0.01	0.00
10.85	0.01	0	296.81	0.01	0.01	0.00
10.90	0.01	1	296.81	0.01	0.01	0.00
10.95	0.01	1	296.81	0.01	0.01	0.00
11.00	0.01	1	296.81	0.01	0.01	0.00
11.05	0.01	1	296.81	0.01	0.01	0.00
11.10	0.01	1	296.81	0.01	0.01	0.00
11.15	0.01	1	296.81	0.01	0.01	0.00
11.20	0.01	1	296.81	0.01	0.01	0.00
11.25	0.01	1	296.81	0.01	0.01	0.00
11.30	0.01	1	296.81	0.01	0.01	0.00
11.35	0.01	1	296.82	0.01	0.01	0.00
11.40	0.01	1	296.82	0.01	0.01	0.00
11.45	0.01	2	296.82	0.01	0.01	0.00
11.50	0.01	2	296.82	0.01	0.01	0.00
11.55	0.02	2	296.82	0.01	0.01	0.00
11.60	0.03	3	296.83	0.02	0.02	0.00
11.65	0.04	5	296.84	0.02	0.02	0.00
11.70	0.06	9	296.86	0.03	0.03	0.00
11.75	0.07	14	296.88	0.04	0.04	0.00
11.80	0.09	21	296.90	0.05	0.05	0.00
11.85	0.13	31	296.92	0.06	0.06	0.00
11.90	0.18	46	296.95	0.08	0.08	0.00
11.95	0.22	66	296.98	0.09	0.09	0.00
12.00	0.18	85	297.01	0.10	0.10	0.00
12.05	0.10	91	297.02	0.11	0.11	0.00
12.10	0.05	85	297.01	0.10	0.10	0.00
12.15	0.03	75	296.99	0.10	0.10	0.00
12.20	0.03	63	296.98	0.09	0.09	0.00
12.25	0.02	53	296.96	0.08	0.08	0.00
12.30	0.02	43	296.95	0.07	0.07	0.00
12.35	0.02	35	296.93	0.07	0.07	0.00
12.40	0.02	28	296.91	0.06	0.06	0.00
12.45	0.02	21	296.90	0.05	0.05	0.00
12.50	0.02	16	296.88	0.04	0.04	0.00
12.55	0.01	11	296.87	0.04	0.04	0.00
12.60	0.01	8	296.86	0.03	0.03	0.00
12.65	0.01	5	296.84	0.02	0.02	0.00

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

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Hydrograph for Pond 46P: BMP #5B (North) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.01	3	296.83	0.02	0.02	0.00
12.75	0.01	2	296.82	0.02	0.02	0.00
12.80	0.01	2	296.82	0.01	0.01	0.00
12.85	0.01	1	296.82	0.01	0.01	0.00
12.90	0.01	1	296.81	0.01	0.01	0.00
12.95	0.01	1	296.81	0.01	0.01	0.00
13.00	0.01	1	296.81	0.01	0.01	0.00
13.05	0.01	1	296.81	0.01	0.01	0.00
13.10	0.01	1	296.81	0.01	0.01	0.00
13.15	0.01	1	296.81	0.01	0.01	0.00
13.20	0.01	1	296.81	0.01	0.01	0.00
13.25	0.01	1	296.81	0.01	0.01	0.00
13.30	0.01	1	296.81	0.01	0.01	0.00
13.35	0.01	1	296.81	0.01	0.01	0.00
13.40	0.01	1	296.81	0.01	0.01	0.00
13.45	0.01	1	296.81	0.01	0.01	0.00
13.50	0.01	1	296.81	0.01	0.01	0.00
13.55	0.01	1	296.81	0.01	0.01	0.00
13.60	0.01	0	296.81	0.01	0.01	0.00
13.65	0.01	0	296.81	0.01	0.01	0.00
13.70	0.01	0	296.81	0.01	0.01	0.00
13.75	0.01	0	296.80	0.01	0.01	0.00
13.80	0.01	0	296.80	0.01	0.01	0.00
13.85	0.01	0	296.80	0.01	0.01	0.00
13.90	0.01	0	296.80	0.01	0.01	0.00
13.95	0.01	0	296.80	0.01	0.01	0.00
14.00	0.01	0	296.80	0.01	0.01	0.00
14.05	0.01	0	296.80	0.01	0.01	0.00
14.10	0.01	0	296.80	0.01	0.01	0.00
14.15	0.01	0	296.80	0.01	0.01	0.00
14.20	0.01	0	296.80	0.01	0.01	0.00
14.25	0.01	0	296.80	0.01	0.01	0.00
14.30	0.01	0	296.80	0.01	0.01	0.00
14.35	0.01	0	296.80	0.01	0.01	0.00
14.40	0.01	0	296.80	0.01	0.01	0.00
14.45	0.01	0	296.80	0.01	0.01	0.00
14.50	0.01	0	296.80	0.01	0.01	0.00
14.55	0.01	0	296.80	0.01	0.01	0.00
14.60	0.01	0	296.80	0.01	0.01	0.00
14.65	0.01	0	296.80	0.01	0.01	0.00
14.70	0.01	0	296.80	0.01	0.01	0.00
14.75	0.01	0	296.80	0.01	0.01	0.00
14.80	0.00	0	296.80	0.00	0.00	0.00
14.85	0.00	0	296.80	0.00	0.00	0.00
14.90	0.00	0	296.80	0.00	0.00	0.00
14.95	0.00	0	296.80	0.00	0.00	0.00
15.00	0.00	0	296.80	0.00	0.00	0.00

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration BMP #6A (Sta. 2105+95 to Sta. 2108+68)**

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes	Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
0.25 ac	A = Area draining to the practice	
0.25 ac	A_I = Impervious area draining to the practice	
1.00 decimal	I = percent impervious area draining to the practice, in decimal form	
0.95 unitless	$Rv = \text{Runoff coefficient} = 0.05 + (0.9 \times I)$	
0.24 ac-in	$WQV = 1'' \times Rv \times A$	
862 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
216 cf	25% x WQV (check calc for sediment forebay volume)	
<u>None</u>	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V_{SED} = sediment forebay volume, if used for pretreatment	$\leftarrow \geq 25\%WQV$
192 cf	V = volume ¹ (attach a stage-storage table)	$\leftarrow \geq WQV$
4,134 sf	A_{SA} = surface area of the bottom of the pond	
1.70 iph	I_{DESIGN} = design infiltration rate ²	
0.3 hours	$T_{DRAIN} = \text{drain time} = V / (A_{SA} * I_{DESIGN})$	$\leftarrow \leq 72\text{-hrs}$
297.24 feet	E_{BTM} = elevation of the bottom of the practice	
290.20 feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
260.00 feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
7.04 feet	D_{SHWT} = separation from SHWT ³	$\leftarrow \geq *^3$
37.2 feet	D_{ROCK} = separation from bedrock ³	$\leftarrow \geq *^3$
ft	D_T = depth of trench, if trench proposed	$\leftarrow 4 - 10\text{ ft}$
No Yes/No	If a trench or underground system is proposed, observation well provided	
Stone	If a trench is proposed, material in trench	
N/A	If a basin is proposed, basin floor material	
N/A Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
N/A :1	If a basin is proposed, pond side slopes	$\leftarrow \geq 3:1$
297.74 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
297.75 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
298.74 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation \leq Elevation of the top of the trench?	$\leftarrow \text{yes}$
YES	If a basin is proposed, 50-year peak elevation \leq Elevation of berm?	$\leftarrow \text{yes}$

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Peak elevations for the 10 year and 50 year storm events assume infiltration is no longer occurring and stormwater within the BMP is flowing to the transverse drains at the low points.

Infiltration rates were determined from NRCS Ksat values for the soil type.

Bedrock elevation is below the cross section grid. The lowest elevation on the grid was entered.

SHWT elevation was determined from nearest boring.

Stage-Area-Storage for Pond 49P: BMP #6A (North)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
297.24	0	0	297.78	7,000	582
297.25	133	0	297.79	7,083	603
297.26	267	1	297.80	7,166	625
297.27	400	2	297.81	7,249	646
297.28	533	3	297.82	7,332	668
297.29	667	5	297.83	7,415	690
297.30	800	7	297.84	7,498	713
297.31	934	10	297.85	7,581	735
297.32	1,067	13	297.86	7,664	758
297.33	1,200	16	297.87	7,748	781
297.34	1,334	20	297.88	7,831	805
297.35	1,467	24	297.89	7,914	828
297.36	1,600	29	297.90	7,997	852
297.37	1,734	34	297.91	8,080	876
297.38	1,867	39	297.92	8,163	901
297.39	2,000	45	297.93	8,246	925
297.40	2,134	51	297.94	8,329	950
297.41	2,267	58	297.95	8,412	975
297.42	2,400	65	297.96	8,495	1,000
297.43	2,534	72	297.97	8,578	1,026
297.44	2,667	80	297.98	8,661	1,052
297.45	2,801	88	297.99	8,744	1,078
297.46	2,934	97	298.00	8,827	1,104
297.47	3,067	106	298.01	8,910	1,131
297.48	3,201	115	298.02	8,993	1,158
297.49	3,334	125	298.03	9,076	1,185
297.50	3,467	135	298.04	9,159	1,212
297.51	3,601	146	298.05	9,242	1,240
297.52	3,734	157	298.06	9,325	1,268
297.53	3,867	168	298.07	9,408	1,296
297.54	4,001	180	298.08	9,491	1,324
297.55	4,134	192	298.09	9,574	1,353
297.56	4,268	205	298.10	9,657	1,382
297.57	4,401	218	298.11	9,740	1,411
297.58	4,534	231	298.12	9,824	1,440
297.59	4,668	245	298.13	9,907	1,470
297.60	4,801	259	298.14	9,990	1,500
297.61	4,934	274	298.15	10,073	1,530
297.62	5,068	289	298.16	10,156	1,560
297.63	5,201	304	298.17	10,239	1,591
297.64	5,334	320	298.18	10,322	1,621
297.65	5,468	336	298.19	10,405	1,653
297.66	5,601	353	298.20	10,488	1,684
297.67	5,734	370	298.21	10,571	1,715
297.68	5,868	387	298.22	10,654	1,747
297.69	6,001	405	298.23	10,737	1,779
297.70	6,135	423	298.24	10,820	1,812
297.71	6,268	442	298.25	10,820	1,844
297.72	6,401	461	298.26	10,820	1,877
297.73	6,535	480	298.27	10,820	1,909
297.74	6,668	500	298.28	10,820	1,942
297.75	6,751	520	298.29	10,820	1,974
297.76	6,834	541	298.30	10,820	2,006
297.77	6,917	561	298.31	10,820	2,039

Max. El. of
WQV in
BMP #6A
North Cell

Top of
Dam El.

Stage-Area-Storage for Pond 49P: BMP #6A (North) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
298.32	10,820	2,071
298.33	10,820	2,104
298.34	10,820	2,136
298.35	10,820	2,169
298.36	10,820	2,201
298.37	10,820	2,234
298.38	10,820	2,266
298.39	10,820	2,299
298.40	10,820	2,331
298.41	10,820	2,364
298.42	10,820	2,396
298.43	10,820	2,428
298.44	10,820	2,461
298.45	10,820	2,493
298.46	10,820	2,526
298.47	10,820	2,558
298.48	10,820	2,591
298.49	10,820	2,623
298.50	10,820	2,656
298.51	10,820	2,688
298.52	10,820	2,721
298.53	10,820	2,753
298.54	10,820	2,786
298.55	10,820	2,818
298.56	10,820	2,850
298.57	10,820	2,883
298.58	10,820	2,915
298.59	10,820	2,948
298.60	10,820	2,980
298.61	10,820	3,013
298.62	10,820	3,045
298.63	10,820	3,078
298.64	10,820	3,110
298.65	10,820	3,143
298.66	10,820	3,175
298.67	10,820	3,207
298.68	10,820	3,240
298.69	10,820	3,272
298.70	10,820	3,305
298.71	10,820	3,337
298.72	10,820	3,370
298.73	10,820	3,402
298.74	10,820	3,435

Hydrograph for Pond 49P: BMP #6A (North)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.01	0	297.25	0.00	0.00	0.00
10.05	0.01	1	297.26	0.01	0.01	0.00
10.10	0.01	1	297.26	0.01	0.01	0.00
10.15	0.01	1	297.26	0.01	0.01	0.00
10.20	0.01	1	297.26	0.01	0.01	0.00
10.25	0.01	1	297.26	0.01	0.01	0.00
10.30	0.01	1	297.26	0.01	0.01	0.00
10.35	0.01	1	297.26	0.01	0.01	0.00
10.40	0.01	1	297.26	0.01	0.01	0.00
10.45	0.01	1	297.26	0.01	0.01	0.00
10.50	0.01	1	297.26	0.01	0.01	0.00
10.55	0.01	1	297.26	0.01	0.01	0.00
10.60	0.01	1	297.26	0.01	0.01	0.00
10.65	0.01	1	297.26	0.01	0.01	0.00
10.70	0.01	1	297.26	0.01	0.01	0.00
10.75	0.01	1	297.26	0.01	0.01	0.00
10.80	0.01	1	297.26	0.01	0.01	0.00
10.85	0.01	1	297.27	0.01	0.01	0.00
10.90	0.01	2	297.27	0.01	0.01	0.00
10.95	0.02	2	297.27	0.01	0.01	0.00
11.00	0.02	2	297.27	0.02	0.02	0.00
11.05	0.02	2	297.27	0.02	0.02	0.00
11.10	0.02	2	297.27	0.02	0.02	0.00
11.15	0.02	2	297.27	0.02	0.02	0.00
11.20	0.02	2	297.27	0.02	0.02	0.00
11.25	0.02	3	297.28	0.02	0.02	0.00
11.30	0.02	3	297.28	0.02	0.02	0.00
11.35	0.02	3	297.28	0.02	0.02	0.00
11.40	0.02	4	297.28	0.02	0.02	0.00
11.45	0.03	4	297.29	0.02	0.02	0.00
11.50	0.03	4	297.29	0.02	0.02	0.00
11.55	0.03	5	297.29	0.03	0.03	0.00
11.60	0.05	7	297.30	0.03	0.03	0.00
11.65	0.07	11	297.32	0.04	0.04	0.00
11.70	0.10	19	297.34	0.05	0.05	0.00
11.75	0.13	30	297.36	0.06	0.06	0.00
11.80	0.17	45	297.39	0.08	0.08	0.00
11.85	0.24	66	297.42	0.10	0.10	0.00
11.90	0.32	97	297.46	0.12	0.12	0.00
11.95	0.39	138	297.50	0.14	0.14	0.00
12.00	0.33	177	297.54	0.16	0.16	0.00
12.05	0.18	194	297.55	0.16	0.16	0.00
12.10	0.08	188	297.55	0.16	0.16	0.00
12.15	0.06	172	297.53	0.15	0.15	0.00
12.20	0.05	155	297.52	0.15	0.15	0.00
12.25	0.05	138	297.50	0.14	0.14	0.00
12.30	0.04	122	297.49	0.13	0.13	0.00
12.35	0.04	107	297.47	0.12	0.12	0.00
12.40	0.04	92	297.45	0.11	0.11	0.00
12.45	0.03	79	297.44	0.10	0.10	0.00
12.50	0.03	67	297.42	0.10	0.10	0.00
12.55	0.03	55	297.41	0.09	0.09	0.00
12.60	0.02	45	297.39	0.08	0.08	0.00
12.65	0.02	36	297.37	0.07	0.07	0.00

14747 Infiltration BMPs WQV

Prepared by Jacobs

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Type II 24-hr WQV Rainfall=1.16"

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Hydrograph for Pond 49P: BMP #6A (North) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.02	28	297.36	0.06	0.06	0.00
12.75	0.02	22	297.34	0.05	0.05	0.00
12.80	0.02	16	297.33	0.05	0.05	0.00
12.85	0.02	12	297.32	0.04	0.04	0.00
12.90	0.02	9	297.31	0.03	0.03	0.00
12.95	0.02	7	297.30	0.03	0.03	0.00
13.00	0.02	5	297.29	0.03	0.03	0.00
13.05	0.02	4	297.28	0.02	0.02	0.00
13.10	0.02	3	297.28	0.02	0.02	0.00
13.15	0.02	3	297.28	0.02	0.02	0.00
13.20	0.02	2	297.27	0.02	0.02	0.00
13.25	0.02	2	297.27	0.02	0.02	0.00
13.30	0.02	2	297.27	0.02	0.02	0.00
13.35	0.02	2	297.27	0.02	0.02	0.00
13.40	0.01	2	297.27	0.02	0.02	0.00
13.45	0.01	2	297.27	0.01	0.01	0.00
13.50	0.01	2	297.27	0.01	0.01	0.00
13.55	0.01	1	297.27	0.01	0.01	0.00
13.60	0.01	1	297.27	0.01	0.01	0.00
13.65	0.01	1	297.27	0.01	0.01	0.00
13.70	0.01	1	297.26	0.01	0.01	0.00
13.75	0.01	1	297.26	0.01	0.01	0.00
13.80	0.01	1	297.26	0.01	0.01	0.00
13.85	0.01	1	297.26	0.01	0.01	0.00
13.90	0.01	1	297.26	0.01	0.01	0.00
13.95	0.01	1	297.26	0.01	0.01	0.00
14.00	0.01	1	297.26	0.01	0.01	0.00
14.05	0.01	1	297.26	0.01	0.01	0.00
14.10	0.01	1	297.26	0.01	0.01	0.00
14.15	0.01	1	297.26	0.01	0.01	0.00
14.20	0.01	1	297.26	0.01	0.01	0.00
14.25	0.01	1	297.26	0.01	0.01	0.00
14.30	0.01	1	297.26	0.01	0.01	0.00
14.35	0.01	1	297.26	0.01	0.01	0.00
14.40	0.01	1	297.26	0.01	0.01	0.00
14.45	0.01	1	297.26	0.01	0.01	0.00
14.50	0.01	1	297.26	0.01	0.01	0.00
14.55	0.01	1	297.26	0.01	0.01	0.00
14.60	0.01	1	297.26	0.01	0.01	0.00
14.65	0.01	1	297.26	0.01	0.01	0.00
14.70	0.01	1	297.26	0.01	0.01	0.00
14.75	0.01	1	297.26	0.01	0.01	0.00
14.80	0.01	1	297.26	0.01	0.01	0.00
14.85	0.01	1	297.26	0.01	0.01	0.00
14.90	0.01	1	297.26	0.01	0.01	0.00
14.95	0.01	1	297.26	0.01	0.01	0.00
15.00	0.01	1	297.26	0.01	0.01	0.00

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration BMP #6B (Sta. 2108+68 to Sta. 2121+61)**

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes	Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
1.19 ac	A = Area draining to the practice	
1.19 ac	A_I = Impervious area draining to the practice	
1.00 decimal	I = percent impervious area draining to the practice, in decimal form	
0.95 unitless	$Rv = \text{Runoff coefficient} = 0.05 + (0.9 \times I)$	
1.13 ac-in	$WQV = 1'' \times Rv \times A$	
4,104 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
1,026 cf	25% x WQV (check calc for sediment forebay volume)	
<u>None</u>	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V_{SED} = sediment forebay volume, if used for pretreatment	$\leftarrow \geq 25\% WQV$
1,174 cf	V = volume ¹ (attach a stage-storage table)	$\leftarrow \geq WQV$
13,802 sf	A_{SA} = surface area of the bottom of the pond	
1.70 iph	I_{DESIGN} = design infiltration rate ²	
0.6 hours	$T_{DRAIN} = V / (A_{SA} * I_{DESIGN})$	$\leftarrow \leq 72\text{-hrs}$
295.71 feet	E_{BTM} = elevation of the bottom of the practice	
291.00 feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
260.00 feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
4.71 feet	D_{SHWT} = separation from SHWT ³	$\leftarrow \geq *^3$
35.7 feet	D_{ROCK} = separation from bedrock ³	$\leftarrow \geq *^3$
ft	D_T = depth of trench, if trench proposed	$\leftarrow 4 - 10\text{ ft}$
No Yes/No	If a trench or underground system is proposed, observation well provided	
Stone	If a trench is proposed, material in trench	
N/A	If a basin is proposed, basin floor material	
N/A Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
N/A :1	If a basin is proposed, pond side slopes	$\leftarrow \geq 3:1$
296.55 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
296.88 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
297.21 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation \leq Elevation of the top of the trench?	\leftarrow yes
YES	If a basin is proposed, 50-year peak elevation \leq Elevation of berm?	\leftarrow yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Peak elevations for the 10 year and 50 year storm events assume infiltration is no longer occurring and stormwater within the BMP is flowing to the transverse drains at the low points.

Infiltration rates were determined from NRCS Ksat values for the soil type.

Bedrock elevation is below the cross section grid. The lowest elevation on the grid was entered.

SHWT elevation represents OHW of the Connecticut River. There is no nearby subsurface data.

Stage-Area-Storage for Pond 53P: BMP #6B (South)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Max. El. of WQV in BMP #6B South Cell
295.71	0	0	296.25	6,261	507	
295.72	116	0	296.26	6,377	526	
295.73	232	1	296.27	6,493	545	
295.74	348	2	296.28	6,609	565	
295.75	464	3	296.29	6,725	585	
295.76	580	4	296.30	6,840	605	
295.77	696	6	296.31	6,956	626	
295.78	812	9	296.32	7,072	647	
295.79	928	11	296.33	7,188	669	
295.80	1,043	14	296.34	7,304	690	
295.81	1,159	17	296.35	7,420	712	
295.82	1,275	21	296.36	7,536	735	
295.83	1,391	25	296.37	7,652	758	
295.84	1,507	29	296.38	7,768	781	Top of Dam El.
295.85	1,623	34	296.39	7,881	804	
295.86	1,739	39	296.40	7,993	828	
295.87	1,855	45	296.41	8,016	852	
295.88	1,971	50	296.42	8,098	876	
295.89	2,087	56	296.43	8,181	900	
295.90	2,203	63	296.44	8,263	925	
295.91	2,319	70	296.45	8,346	950	
295.92	2,435	77	296.46	8,428	975	
295.93	2,551	84	296.47	8,511	1,000	
295.94	2,667	92	296.48	8,593	1,026	
295.95	2,783	100	296.49	8,676	1,052	
295.96	2,899	109	296.50	8,759	1,078	
295.97	3,014	118	296.51	8,841	1,105	
295.98	3,130	127	296.52	8,924	1,131	
295.99	3,246	136	296.53	9,006	1,158	
296.00	3,362	146	296.54	9,089	1,185	
296.01	3,478	157	296.55	9,171	1,213	
296.02	3,594	167	296.56	9,254	1,240	
296.03	3,710	178	296.57	9,336	1,268	
296.04	3,826	189	296.58	9,419	1,296	
296.05	3,942	201	296.59	9,501	1,325	
296.06	4,058	213	296.60	9,584	1,353	
296.07	4,174	225	296.61	9,667	1,382	
296.08	4,290	238	296.62	9,749	1,411	
296.09	4,406	251	296.63	9,832	1,441	
296.10	4,522	265	296.64	9,914	1,470	
296.11	4,638	278	296.65	9,997	1,500	
296.12	4,754	292	296.66	10,079	1,530	
296.13	4,869	307	296.67	10,162	1,561	
296.14	4,985	322	296.68	10,244	1,591	
296.15	5,101	337	296.69	10,327	1,622	
296.16	5,217	352	296.70	10,409	1,653	
296.17	5,333	368	296.71	10,492	1,685	
296.18	5,449	384	296.72	10,572	1,716	
296.19	5,565	401	296.73	10,652	1,748	
296.20	5,681	418	296.74	10,732	1,780	
296.21	5,797	435	296.75	10,812	1,812	
296.22	5,913	452	296.76	10,892	1,845	
296.23	6,029	470	296.77	10,972	1,878	
296.24	6,145	489	296.78	11,052	1,911	

Stage-Area-Storage for Pond 53P: BMP #6B (South) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
296.79	11,132	1,944
296.80	11,212	1,978
296.81	11,292	2,011
296.82	11,372	2,045
296.83	11,452	2,080
296.84	11,532	2,114
296.85	11,612	2,149
296.86	11,692	2,184
296.87	11,772	2,219
296.88	11,852	2,254
296.89	11,932	2,290
296.90	12,012	2,326
296.91	12,092	2,362
296.92	12,172	2,398
296.93	12,252	2,435
296.94	12,332	2,472
296.95	12,412	2,509
296.96	12,492	2,546
296.97	12,572	2,584
296.98	12,652	2,622
296.99	12,732	2,660
297.00	12,812	2,698
297.01	12,892	2,737
297.02	12,972	2,776
297.03	13,052	2,815
297.04	13,132	2,854
297.05	13,212	2,893
297.06	13,292	2,933
297.07	13,372	2,973
297.08	13,452	3,013
297.09	13,532	3,054
297.10	13,612	3,095
297.11	13,692	3,136
297.12	13,772	3,177
297.13	13,852	3,218
297.14	13,932	3,260
297.15	14,012	3,302
297.16	14,092	3,344
297.17	14,172	3,386
297.18	14,252	3,429
297.19	14,332	3,472
297.20	14,412	3,515
297.21	14,492	3,558

Stage-Area-Storage for Pond 54P: BMP #6B (North)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	
295.71	0	0	296.25	6,902	559	
295.72	128	0	296.26	7,030	580	
295.73	256	1	296.27	7,158	601	
295.74	383	2	296.28	7,286	623	
295.75	511	3	296.29	7,414	645	
295.76	639	5	296.30	7,541	667	Max. El. of WQV in BMP #6B North Cell
295.77	767	7	296.31	7,669	690	
295.78	895	9	296.32	7,797	713	
295.79	1,023	12	296.33	7,925	737	
295.80	1,150	16	296.34	8,053	761	
295.81	1,278	19	296.35	8,181	785	
295.82	1,406	23	296.36	8,308	810	
295.83	1,534	28	296.37	8,436	835	
295.84	1,662	32	296.38	8,564	861	Top of Dam El.
295.85	1,789	38	296.39	8,646	886	
295.86	1,917	43	296.40	8,729	913	
295.87	2,045	49	296.41	8,811	939	
295.88	2,173	55	296.42	8,894	965	
295.89	2,301	62	296.43	8,976	992	
295.90	2,429	69	296.44	9,059	1,019	
295.91	2,556	77	296.45	9,141	1,047	
295.92	2,684	85	296.46	9,223	1,074	
295.93	2,812	93	296.47	9,306	1,102	
295.94	2,940	101	296.48	9,388	1,130	
295.95	3,068	110	296.49	9,471	1,158	
295.96	3,196	120	296.50	9,553	1,187	
295.97	3,323	130	296.51	9,636	1,216	
295.98	3,451	140	296.52	9,718	1,245	
295.99	3,579	150	296.53	9,800	1,274	
296.00	3,707	161	296.54	9,883	1,303	
296.01	3,835	173	296.55	9,965	1,333	
296.02	3,962	184	296.56	10,048	1,363	
296.03	4,090	196	296.57	10,130	1,393	
296.04	4,218	209	296.58	10,212	1,424	
296.05	4,346	222	296.59	10,295	1,455	
296.06	4,474	235	296.60	10,377	1,486	
296.07	4,602	248	296.61	10,460	1,517	
296.08	4,729	262	296.62	10,542	1,549	
296.09	4,857	277	296.63	10,625	1,580	
296.10	4,985	292	296.64	10,707	1,612	
296.11	5,113	307	296.65	10,789	1,644	
296.12	5,241	322	296.66	10,872	1,677	
296.13	5,368	338	296.67	10,954	1,710	
296.14	5,496	355	296.68	11,037	1,743	
296.15	5,624	371	296.69	11,119	1,776	
296.16	5,752	388	296.70	11,202	1,809	
296.17	5,880	406	296.71	11,284	1,843	
296.18	6,008	424	296.72	11,368	1,877	
296.19	6,135	442	296.73	11,451	1,911	
296.20	6,263	460	296.74	11,535	1,946	
296.21	6,391	479	296.75	11,618	1,981	
296.22	6,519	499	296.76	11,702	2,016	
296.23	6,647	518	296.77	11,785	2,051	
296.24	6,775	539	296.78	11,869	2,086	

Stage-Area-Storage for Pond 54P: BMP #6B (North) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
296.79	11,952	2,122
296.80	12,036	2,158
296.81	12,119	2,194
296.82	12,203	2,231
296.83	12,286	2,267
296.84	12,370	2,304
296.85	12,453	2,342
296.86	12,537	2,379
296.87	12,620	2,417
296.88	12,704	2,455
296.89	12,787	2,493
296.90	12,871	2,532
296.91	12,954	2,570
296.92	13,038	2,609
296.93	13,121	2,649
296.94	13,205	2,688
296.95	13,288	2,728
296.96	13,372	2,768
296.97	13,456	2,808
296.98	13,539	2,848
296.99	13,623	2,889
297.00	13,706	2,930
297.01	13,790	2,971
297.02	13,873	3,013
297.03	13,957	3,055
297.04	14,040	3,097
297.05	14,124	3,139
297.06	14,207	3,181
297.07	14,291	3,224
297.08	14,374	3,267
297.09	14,458	3,310
297.10	14,541	3,354
297.11	14,625	3,398
297.12	14,708	3,442
297.13	14,792	3,486
297.14	14,875	3,530
297.15	14,959	3,575
297.16	15,042	3,620
297.17	15,126	3,665
297.18	15,209	3,711
297.19	15,293	3,757
297.20	15,376	3,803
297.21	15,460	3,849

Hydrograph for Pond 53P: BMP #6B (South)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.02	1	295.73	0.01	0.01	0.00
10.05	0.02	2	295.74	0.01	0.01	0.00
10.10	0.02	2	295.74	0.02	0.02	0.00
10.15	0.02	2	295.75	0.02	0.02	0.00
10.20	0.02	3	295.75	0.02	0.02	0.00
10.25	0.02	3	295.75	0.02	0.02	0.00
10.30	0.02	3	295.75	0.02	0.02	0.00
10.35	0.02	3	295.75	0.02	0.02	0.00
10.40	0.02	3	295.75	0.02	0.02	0.00
10.45	0.02	4	295.76	0.02	0.02	0.00
10.50	0.02	4	295.76	0.02	0.02	0.00
10.55	0.02	4	295.76	0.02	0.02	0.00
10.60	0.02	4	295.76	0.02	0.02	0.00
10.65	0.03	5	295.76	0.02	0.02	0.00
10.70	0.03	5	295.76	0.02	0.02	0.00
10.75	0.03	5	295.77	0.03	0.03	0.00
10.80	0.03	6	295.77	0.03	0.03	0.00
10.85	0.03	6	295.77	0.03	0.03	0.00
10.90	0.03	7	295.77	0.03	0.03	0.00
10.95	0.03	7	295.77	0.03	0.03	0.00
11.00	0.03	8	295.78	0.03	0.03	0.00
11.05	0.03	8	295.78	0.03	0.03	0.00
11.10	0.04	9	295.78	0.03	0.03	0.00
11.15	0.04	9	295.78	0.03	0.03	0.00
11.20	0.04	10	295.79	0.04	0.04	0.00
11.25	0.04	11	295.79	0.04	0.04	0.00
11.30	0.05	13	295.80	0.04	0.04	0.00
11.35	0.05	14	295.80	0.04	0.04	0.00
11.40	0.05	15	295.80	0.04	0.04	0.00
11.45	0.05	17	295.81	0.05	0.05	0.00
11.50	0.06	19	295.81	0.05	0.05	0.00
11.55	0.06	21	295.82	0.05	0.05	0.00
11.60	0.10	26	295.83	0.06	0.06	0.00
11.65	0.15	37	295.86	0.07	0.07	0.00
11.70	0.22	57	295.89	0.08	0.08	0.00
11.75	0.28	85	295.93	0.10	0.10	0.00
11.80	0.36	123	295.98	0.12	0.12	0.00
11.85	0.49	176	296.03	0.15	0.15	0.00
11.90	0.67	253	296.09	0.17	0.17	0.00
11.95	0.82	353	296.16	0.21	0.21	0.00
12.00	0.69	449	296.22	0.23	0.23	0.00
12.05	0.37	502	296.25	0.25	0.25	0.00
12.10	0.18	507	296.25	0.25	0.25	0.00
12.15	0.12	490	296.24	0.24	0.24	0.00
12.20	0.10	467	296.23	0.24	0.24	0.00
12.25	0.10	443	296.21	0.23	0.23	0.00
12.30	0.09	418	296.20	0.22	0.22	0.00
12.35	0.08	394	296.19	0.22	0.22	0.00
12.40	0.07	370	296.17	0.21	0.21	0.00
12.45	0.07	345	296.16	0.20	0.20	0.00
12.50	0.06	321	296.14	0.20	0.20	0.00
12.55	0.06	297	296.12	0.19	0.19	0.00
12.60	0.05	273	296.11	0.18	0.18	0.00
12.65	0.05	251	296.09	0.17	0.17	0.00

Hydrograph for Pond 53P: BMP #6B (South) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.05	229	296.07	0.17	0.17	0.00
12.75	0.05	208	296.06	0.16	0.16	0.00
12.80	0.04	189	296.04	0.15	0.15	0.00
12.85	0.04	170	296.02	0.14	0.14	0.00
12.90	0.04	153	296.01	0.14	0.14	0.00
12.95	0.04	136	295.99	0.13	0.13	0.00
13.00	0.04	121	295.97	0.12	0.12	0.00
13.05	0.04	107	295.96	0.11	0.11	0.00
13.10	0.04	94	295.94	0.11	0.11	0.00
13.15	0.03	82	295.93	0.10	0.10	0.00
13.20	0.03	71	295.91	0.09	0.09	0.00
13.25	0.03	61	295.90	0.09	0.09	0.00
13.30	0.03	52	295.88	0.08	0.08	0.00
13.35	0.03	44	295.87	0.07	0.07	0.00
13.40	0.03	37	295.86	0.07	0.07	0.00
13.45	0.03	31	295.84	0.06	0.06	0.00
13.50	0.03	26	295.83	0.06	0.06	0.00
13.55	0.03	22	295.82	0.05	0.05	0.00
13.60	0.03	18	295.81	0.05	0.05	0.00
13.65	0.03	15	295.80	0.04	0.04	0.00
13.70	0.03	12	295.79	0.04	0.04	0.00
13.75	0.03	10	295.79	0.04	0.04	0.00
13.80	0.03	9	295.78	0.03	0.03	0.00
13.85	0.02	8	295.78	0.03	0.03	0.00
13.90	0.02	7	295.77	0.03	0.03	0.00
13.95	0.02	6	295.77	0.03	0.03	0.00
14.00	0.02	6	295.77	0.03	0.03	0.00
14.05	0.02	5	295.76	0.02	0.02	0.00
14.10	0.02	5	295.76	0.02	0.02	0.00
14.15	0.02	4	295.76	0.02	0.02	0.00
14.20	0.02	4	295.76	0.02	0.02	0.00
14.25	0.02	4	295.76	0.02	0.02	0.00
14.30	0.02	4	295.76	0.02	0.02	0.00
14.35	0.02	4	295.76	0.02	0.02	0.00
14.40	0.02	4	295.76	0.02	0.02	0.00
14.45	0.02	4	295.76	0.02	0.02	0.00
14.50	0.02	4	295.76	0.02	0.02	0.00
14.55	0.02	4	295.75	0.02	0.02	0.00
14.60	0.02	3	295.75	0.02	0.02	0.00
14.65	0.02	3	295.75	0.02	0.02	0.00
14.70	0.02	3	295.75	0.02	0.02	0.00
14.75	0.02	3	295.75	0.02	0.02	0.00
14.80	0.02	3	295.75	0.02	0.02	0.00
14.85	0.02	3	295.75	0.02	0.02	0.00
14.90	0.02	3	295.75	0.02	0.02	0.00
14.95	0.02	3	295.75	0.02	0.02	0.00
15.00	0.02	3	295.75	0.02	0.02	0.00

Hydrograph for Pond 54P: BMP #6B (North)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.02	1	295.73	0.01	0.01	0.00
10.05	0.02	2	295.74	0.02	0.02	0.00
10.10	0.02	3	295.75	0.02	0.02	0.00
10.15	0.02	3	295.75	0.02	0.02	0.00
10.20	0.02	4	295.75	0.02	0.02	0.00
10.25	0.02	4	295.76	0.02	0.02	0.00
10.30	0.03	4	295.76	0.02	0.02	0.00
10.35	0.03	5	295.76	0.02	0.02	0.00
10.40	0.03	5	295.76	0.03	0.03	0.00
10.45	0.03	5	295.76	0.03	0.03	0.00
10.50	0.03	6	295.76	0.03	0.03	0.00
10.55	0.03	6	295.76	0.03	0.03	0.00
10.60	0.03	6	295.77	0.03	0.03	0.00
10.65	0.03	7	295.77	0.03	0.03	0.00
10.70	0.03	7	295.77	0.03	0.03	0.00
10.75	0.03	8	295.77	0.03	0.03	0.00
10.80	0.04	8	295.77	0.03	0.03	0.00
10.85	0.04	9	295.78	0.03	0.03	0.00
10.90	0.04	9	295.78	0.03	0.03	0.00
10.95	0.04	10	295.78	0.04	0.04	0.00
11.00	0.04	11	295.78	0.04	0.04	0.00
11.05	0.04	11	295.79	0.04	0.04	0.00
11.10	0.05	12	295.79	0.04	0.04	0.00
11.15	0.05	13	295.79	0.04	0.04	0.00
11.20	0.05	15	295.80	0.04	0.04	0.00
11.25	0.05	16	295.80	0.05	0.05	0.00
11.30	0.06	18	295.81	0.05	0.05	0.00
11.35	0.06	20	295.81	0.05	0.05	0.00
11.40	0.06	22	295.82	0.05	0.05	0.00
11.45	0.07	24	295.82	0.06	0.06	0.00
11.50	0.07	26	295.83	0.06	0.06	0.00
11.55	0.08	29	295.83	0.06	0.06	0.00
11.60	0.12	36	295.85	0.07	0.07	0.00
11.65	0.19	51	295.87	0.08	0.08	0.00
11.70	0.27	76	295.91	0.10	0.10	0.00
11.75	0.36	113	295.95	0.12	0.12	0.00
11.80	0.45	161	296.00	0.15	0.15	0.00
11.85	0.62	229	296.06	0.17	0.17	0.00
11.90	0.85	328	296.12	0.21	0.21	0.00
11.95	1.03	456	296.20	0.25	0.25	0.00
12.00	0.87	581	296.26	0.28	0.28	0.00
12.05	0.47	649	296.29	0.29	0.29	0.00
12.10	0.22	658	296.30	0.29	0.29	0.00
12.15	0.15	640	296.29	0.29	0.29	0.00
12.20	0.13	614	296.28	0.28	0.28	0.00
12.25	0.12	586	296.26	0.28	0.28	0.00
12.30	0.11	557	296.25	0.27	0.27	0.00
12.35	0.10	528	296.23	0.26	0.26	0.00
12.40	0.09	499	296.22	0.26	0.26	0.00
12.45	0.09	470	296.20	0.25	0.25	0.00
12.50	0.08	440	296.19	0.24	0.24	0.00
12.55	0.07	411	296.17	0.23	0.23	0.00
12.60	0.06	382	296.16	0.22	0.22	0.00
12.65	0.06	354	296.14	0.22	0.22	0.00

Hydrograph for Pond 54P: BMP #6B (North) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.06	327	296.12	0.21	0.21	0.00
12.75	0.06	301	296.11	0.20	0.20	0.00
12.80	0.06	276	296.09	0.19	0.19	0.00
12.85	0.05	252	296.07	0.18	0.18	0.00
12.90	0.05	230	296.06	0.17	0.17	0.00
12.95	0.05	208	296.04	0.17	0.17	0.00
13.00	0.05	188	296.02	0.16	0.16	0.00
13.05	0.05	169	296.01	0.15	0.15	0.00
13.10	0.05	151	295.99	0.14	0.14	0.00
13.15	0.04	134	295.97	0.13	0.13	0.00
13.20	0.04	119	295.96	0.13	0.13	0.00
13.25	0.04	105	295.94	0.12	0.12	0.00
13.30	0.04	92	295.93	0.11	0.11	0.00
13.35	0.04	80	295.91	0.10	0.10	0.00
13.40	0.04	69	295.90	0.10	0.10	0.00
13.45	0.04	60	295.89	0.09	0.09	0.00
13.50	0.04	51	295.87	0.08	0.08	0.00
13.55	0.04	43	295.86	0.08	0.08	0.00
13.60	0.03	37	295.85	0.07	0.07	0.00
13.65	0.03	31	295.84	0.06	0.06	0.00
13.70	0.03	26	295.83	0.06	0.06	0.00
13.75	0.03	22	295.82	0.05	0.05	0.00
13.80	0.03	18	295.81	0.05	0.05	0.00
13.85	0.03	15	295.80	0.05	0.05	0.00
13.90	0.03	13	295.79	0.04	0.04	0.00
13.95	0.03	11	295.79	0.04	0.04	0.00
14.00	0.03	10	295.78	0.04	0.04	0.00
14.05	0.03	9	295.78	0.03	0.03	0.00
14.10	0.03	8	295.77	0.03	0.03	0.00
14.15	0.03	7	295.77	0.03	0.03	0.00
14.20	0.03	7	295.77	0.03	0.03	0.00
14.25	0.03	6	295.77	0.03	0.03	0.00
14.30	0.03	6	295.77	0.03	0.03	0.00
14.35	0.03	6	295.76	0.03	0.03	0.00
14.40	0.03	6	295.76	0.03	0.03	0.00
14.45	0.03	5	295.76	0.03	0.03	0.00
14.50	0.03	5	295.76	0.03	0.03	0.00
14.55	0.03	5	295.76	0.03	0.03	0.00
14.60	0.02	5	295.76	0.03	0.03	0.00
14.65	0.02	5	295.76	0.03	0.03	0.00
14.70	0.02	5	295.76	0.03	0.03	0.00
14.75	0.02	5	295.76	0.02	0.02	0.00
14.80	0.02	5	295.76	0.02	0.02	0.00
14.85	0.02	5	295.76	0.02	0.02	0.00
14.90	0.02	4	295.76	0.02	0.02	0.00
14.95	0.02	4	295.76	0.02	0.02	0.00
15.00	0.02	4	295.76	0.02	0.02	0.00

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration BMP #6C (Sta. 2121+61 to Sta. 2130+00)**

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes	Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
0.76 ac	A = Area draining to the practice	
0.76 ac	A_I = Impervious area draining to the practice	
1.00 decimal	I = percent impervious area draining to the practice, in decimal form	
0.95 unitless	$Rv = \text{Runoff coefficient} = 0.05 + (0.9 \times I)$	
0.72 ac-in	$WQV = 1'' \times Rv \times A$	
2,621 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
655 cf	25% x WQV (check calc for sediment forebay volume)	
<u>None</u>	Method of pretreatment? (not required for clean or roof runoff)	
- cf	V_{SED} = sediment forebay volume, if used for pretreatment	$\leftarrow \geq 25\%WQV$
782 cf	V = volume ¹ (attach a stage-storage table)	$\leftarrow \geq WQV$
10,559 sf	A_{SA} = surface area of the bottom of the pond	
1.70 iph	I_{DESIGN} = design infiltration rate ²	
0.5 hours	$T_{DRAIN} = V / (A_{SA} * I_{DESIGN})$	$\leftarrow \leq 72\text{-hrs}$
295.86 feet	E_{BTM} = elevation of the bottom of the practice	
291.60 feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
260.00 feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
4.26 feet	D_{SHWT} = separation from SHWT ³	$\leftarrow \geq *^3$
35.9 feet	D_{ROCK} = separation from bedrock ³	$\leftarrow \geq *^3$
ft	D_T = depth of trench, if trench proposed	$\leftarrow 4 - 10\text{ ft}$
No Yes/No	If a trench or underground system is proposed, observation well provided	
Stone	If a trench is proposed, material in trench	
N/A	If a basin is proposed, basin floor material	
N/A Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
N/A :1	If a basin is proposed, pond side slopes	$\leftarrow \geq 3:1$
296.56 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
296.83 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
297.36 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation \leq Elevation of the top of the trench?	\leftarrow yes
YES	If a basin is proposed, 50-year peak elevation \leq Elevation of berm?	\leftarrow yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Peak elevations for the 10 year and 50 year storm events assume infiltration is no longer occurring and stormwater within the BMP is flowing to the transverse drains at the low points.

Infiltration rates were determined from NRCS Ksat values for the soil type.

Bedrock elevation is below the cross section grid. The lowest elevation on the grid was entered.

SHWT elevation was determined from nearest boring.

Stage-Area-Storage for Pond 58P: BMP #6C (South)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
295.86	0	0	296.40	5,671	459
295.87	105	0	296.41	5,776	477
295.88	210	1	296.42	5,881	494
295.89	315	1	296.43	5,986	512
295.90	420	3	296.44	6,091	530
295.91	525	4	296.45	6,196	548
295.92	630	6	296.46	6,301	567
295.93	735	8	296.47	6,406	586
295.94	840	10	296.48	6,511	606
295.95	945	13	296.49	6,616	625
295.96	1,050	16	296.50	6,721	645
295.97	1,155	19	296.51	6,826	666
295.98	1,260	23	296.52	6,931	686
295.99	1,365	27	296.53	7,036	707
296.00	1,470	31	296.54	7,116	728
296.01	1,575	35	296.55	7,197	750
296.02	1,680	40	296.56	7,277	772
296.03	1,785	46	296.57	7,357	793
296.04	1,890	51	296.58	7,438	816
296.05	1,995	57	296.59	7,518	838
296.06	2,100	63	296.60	7,598	861
296.07	2,205	69	296.61	7,679	884
296.08	2,310	76	296.62	7,759	907
296.09	2,415	83	296.63	7,839	930
296.10	2,520	91	296.64	7,920	954
296.11	2,625	98	296.65	8,000	978
296.12	2,730	106	296.66	8,080	1,002
296.13	2,835	115	296.67	8,161	1,026
296.14	2,940	123	296.68	8,241	1,051
296.15	3,045	132	296.69	8,321	1,076
296.16	3,150	142	296.70	8,402	1,101
296.17	3,255	151	296.71	8,482	1,126
296.18	3,360	161	296.72	8,562	1,152
296.19	3,465	172	296.73	8,643	1,177
296.20	3,571	182	296.74	8,723	1,204
296.21	3,676	193	296.75	8,803	1,230
296.22	3,781	204	296.76	8,884	1,256
296.23	3,886	216	296.77	8,964	1,283
296.24	3,991	227	296.78	9,044	1,310
296.25	4,096	240	296.79	9,125	1,337
296.26	4,201	252	296.80	9,205	1,365
296.27	4,306	265	296.81	9,285	1,393
296.28	4,411	278	296.82	9,366	1,421
296.29	4,516	291	296.83	9,446	1,449
296.30	4,621	305	296.84	9,526	1,477
296.31	4,726	319	296.85	9,607	1,506
296.32	4,831	333	296.86	9,687	1,535
296.33	4,936	348	296.87	9,765	1,564
296.34	5,041	363	296.88	9,843	1,593
296.35	5,146	378	296.89	9,921	1,623
296.36	5,251	394	296.90	9,999	1,653
296.37	5,356	410	296.91	10,077	1,683
296.38	5,461	426	296.92	10,155	1,713
296.39	5,566	442	296.93	10,233	1,744

Max. El. of
WQV in
BMP #6C
South Cell

Top of
Dam El.

Stage-Area-Storage for Pond 58P: BMP #6C (South) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
296.94	10,311	1,775
296.95	10,389	1,806
296.96	10,467	1,837
296.97	10,545	1,869
296.98	10,623	1,900
296.99	10,701	1,932
297.00	10,779	1,965
297.01	10,857	1,997
297.02	10,935	2,030
297.03	11,013	2,063
297.04	11,091	2,096
297.05	11,169	2,129
297.06	11,247	2,163
297.07	11,325	2,197
297.08	11,403	2,231
297.09	11,481	2,265
297.10	11,559	2,300
297.11	11,637	2,335
297.12	11,715	2,370
297.13	11,793	2,405
297.14	11,871	2,440
297.15	11,949	2,476
297.16	12,027	2,512
297.17	12,105	2,548
297.18	12,183	2,585
297.19	12,261	2,621
297.20	12,339	2,658
297.21	12,417	2,695
297.22	12,495	2,733
297.23	12,573	2,770
297.24	12,651	2,808
297.25	12,729	2,846
297.26	12,807	2,885
297.27	12,885	2,923
297.28	12,963	2,962
297.29	13,041	3,001
297.30	13,119	3,040
297.31	13,197	3,080
297.32	13,275	3,119
297.33	13,353	3,159
297.34	13,431	3,199
297.35	13,509	3,240
297.36	13,587	3,280

Stage-Area-Storage for Pond 59P: BMP #6C (North)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
295.86	0	0	296.40	6,979	607
295.87	140	0	296.41	6,979	628
295.88	279	1	296.42	6,979	649
295.89	419	2	296.43	6,979	670
295.90	558	3	296.44	6,979	691
295.91	698	5	296.45	6,979	712
295.92	837	8	296.46	6,979	733
295.93	977	10	296.47	6,979	754
295.94	1,117	13	296.48	6,979	775
295.95	1,256	17	296.49	6,979	796
295.96	1,396	21	296.50	6,979	817
295.97	1,535	25	296.51	6,979	837
295.98	1,675	30	296.52	6,979	858
295.99	1,815	35	296.53	6,979	879
296.00	1,954	41	296.54	6,979	900
296.01	2,094	47	296.55	6,979	921
296.02	2,233	54	296.56	6,979	942
296.03	2,373	61	296.57	6,979	963
296.04	2,512	68	296.58	6,979	984
296.05	2,652	76	296.59	6,979	1,005
296.06	2,792	84	296.60	6,979	1,026
296.07	2,931	92	296.61	6,979	1,047
296.08	3,071	101	296.62	6,979	1,068
296.09	3,210	111	296.63	6,979	1,089
296.10	3,350	121	296.64	6,979	1,110
296.11	3,490	131	296.65	6,979	1,131
296.12	3,629	142	296.66	6,979	1,152
296.13	3,769	153	296.67	6,979	1,172
296.14	3,908	164	296.68	6,979	1,193
Max. El. of WQV in BMP #6C North Cell	296.15	4,048	296.69	6,979	1,214
296.16	4,187	188	296.70	6,979	1,235
296.17	4,327	201	296.71	6,979	1,256
296.18	4,467	214	296.72	6,979	1,277
296.19	4,606	228	296.73	6,979	1,298
296.20	4,746	242	296.74	6,979	1,319
296.21	4,885	256	296.75	6,979	1,340
296.22	5,025	271	296.76	6,979	1,361
296.23	5,164	287	296.77	6,979	1,382
296.24	5,304	302	296.78	6,979	1,403
296.25	5,444	318	296.79	6,979	1,424
296.26	5,583	335	296.80	6,979	1,445
296.27	5,723	352	296.81	6,979	1,466
296.28	5,862	369	296.82	6,979	1,487
296.29	6,002	387	296.83	6,979	1,507
296.30	6,142	405	296.84	6,979	1,528
296.31	6,281	424	296.85	6,979	1,549
296.32	6,421	443	296.86	6,979	1,570
296.33	6,560	462	296.87	6,979	1,591
296.34	6,700	482	296.88	6,979	1,612
296.35	6,839	503	296.89	6,979	1,633
Top of Dam El.	296.36	6,979	296.90	6,979	1,654
296.37	6,979	544	296.91	6,979	1,675
296.38	6,979	565	296.92	6,979	1,696
296.39	6,979	586	296.93	6,979	1,717

Stage-Area-Storage for Pond 59P: BMP #6C (North) (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
296.94	6,979	1,738
296.95	6,979	1,759
296.96	6,979	1,780
296.97	6,979	1,801
296.98	6,979	1,822
296.99	6,979	1,842
297.00	6,979	1,863
297.01	6,979	1,884
297.02	6,979	1,905
297.03	6,979	1,926
297.04	6,979	1,947
297.05	6,979	1,968
297.06	6,979	1,989
297.07	6,979	2,010
297.08	6,979	2,031
297.09	6,979	2,052
297.10	6,979	2,073
297.11	6,979	2,094
297.12	6,979	2,115
297.13	6,979	2,136
297.14	6,979	2,157
297.15	6,979	2,177
297.16	6,979	2,198
297.17	6,979	2,219
297.18	6,979	2,240
297.19	6,979	2,261
297.20	6,979	2,282
297.21	6,979	2,303
297.22	6,979	2,324
297.23	6,979	2,345
297.24	6,979	2,366
297.25	6,979	2,387
297.26	6,979	2,408
297.27	6,979	2,429
297.28	6,979	2,450
297.29	6,979	2,471
297.30	6,979	2,492
297.31	6,979	2,512
297.32	6,979	2,533
297.33	6,979	2,554
297.34	6,979	2,575
297.35	6,979	2,596
297.36	6,979	2,617

Hydrograph for Pond 58P: BMP #6C (South)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.02	1	295.88	0.01	0.01	0.00
10.05	0.02	2	295.90	0.01	0.01	0.00
10.10	0.02	3	295.90	0.02	0.02	0.00
10.15	0.02	3	295.90	0.02	0.02	0.00
10.20	0.02	3	295.91	0.02	0.02	0.00
10.25	0.02	4	295.91	0.02	0.02	0.00
10.30	0.02	4	295.91	0.02	0.02	0.00
10.35	0.02	4	295.91	0.02	0.02	0.00
10.40	0.02	5	295.91	0.02	0.02	0.00
10.45	0.02	5	295.92	0.02	0.02	0.00
10.50	0.03	5	295.92	0.02	0.02	0.00
10.55	0.03	6	295.92	0.02	0.02	0.00
10.60	0.03	6	295.92	0.03	0.03	0.00
10.65	0.03	6	295.92	0.03	0.03	0.00
10.70	0.03	7	295.93	0.03	0.03	0.00
10.75	0.03	7	295.93	0.03	0.03	0.00
10.80	0.03	8	295.93	0.03	0.03	0.00
10.85	0.03	8	295.93	0.03	0.03	0.00
10.90	0.03	9	295.94	0.03	0.03	0.00
10.95	0.04	10	295.94	0.03	0.03	0.00
11.00	0.04	10	295.94	0.03	0.03	0.00
11.05	0.04	11	295.94	0.03	0.03	0.00
11.10	0.04	12	295.95	0.04	0.04	0.00
11.15	0.04	13	295.95	0.04	0.04	0.00
11.20	0.05	14	295.95	0.04	0.04	0.00
11.25	0.05	15	295.96	0.04	0.04	0.00
11.30	0.05	17	295.96	0.04	0.04	0.00
11.35	0.05	19	295.97	0.04	0.04	0.00
11.40	0.06	20	295.97	0.05	0.05	0.00
11.45	0.06	22	295.98	0.05	0.05	0.00
11.50	0.06	25	295.98	0.05	0.05	0.00
11.55	0.07	27	295.99	0.05	0.05	0.00
11.60	0.11	34	296.01	0.06	0.06	0.00
11.65	0.17	47	296.03	0.07	0.07	0.00
11.70	0.24	70	296.07	0.09	0.09	0.00
11.75	0.32	103	296.12	0.11	0.11	0.00
11.80	0.41	148	296.17	0.13	0.13	0.00
11.85	0.56	209	296.22	0.15	0.15	0.00
11.90	0.76	298	296.30	0.18	0.18	0.00
11.95	0.92	415	296.37	0.21	0.21	0.00
12.00	0.78	527	296.44	0.24	0.24	0.00
12.05	0.42	590	296.47	0.25	0.25	0.00
12.10	0.20	600	296.48	0.26	0.26	0.00
12.15	0.14	585	296.47	0.25	0.25	0.00
12.20	0.12	563	296.46	0.25	0.25	0.00
12.25	0.11	539	296.44	0.24	0.24	0.00
12.30	0.10	515	296.43	0.24	0.24	0.00
12.35	0.09	490	296.42	0.23	0.23	0.00
12.40	0.08	465	296.40	0.22	0.22	0.00
12.45	0.08	439	296.39	0.22	0.22	0.00
12.50	0.07	414	296.37	0.21	0.21	0.00
12.55	0.06	388	296.36	0.21	0.21	0.00
12.60	0.06	363	296.34	0.20	0.20	0.00
12.65	0.06	338	296.32	0.19	0.19	0.00

Hydrograph for Pond 58P: BMP #6C (South) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.05	314	296.31	0.18	0.18	0.00
12.75	0.05	291	296.29	0.18	0.18	0.00
12.80	0.05	269	296.27	0.17	0.17	0.00
12.85	0.05	248	296.26	0.16	0.16	0.00
12.90	0.05	227	296.24	0.16	0.16	0.00
12.95	0.05	208	296.22	0.15	0.15	0.00
13.00	0.04	189	296.21	0.14	0.14	0.00
13.05	0.04	172	296.19	0.14	0.14	0.00
13.10	0.04	155	296.17	0.13	0.13	0.00
13.15	0.04	140	296.16	0.12	0.12	0.00
13.20	0.04	125	296.14	0.12	0.12	0.00
13.25	0.04	112	296.13	0.11	0.11	0.00
13.30	0.04	99	296.11	0.10	0.10	0.00
13.35	0.04	87	296.10	0.10	0.10	0.00
13.40	0.03	77	296.08	0.09	0.09	0.00
13.45	0.03	67	296.07	0.09	0.09	0.00
13.50	0.03	58	296.05	0.08	0.08	0.00
13.55	0.03	50	296.04	0.07	0.07	0.00
13.60	0.03	43	296.03	0.07	0.07	0.00
13.65	0.03	37	296.01	0.06	0.06	0.00
13.70	0.03	31	296.00	0.06	0.06	0.00
13.75	0.03	27	295.99	0.05	0.05	0.00
13.80	0.03	23	295.98	0.05	0.05	0.00
13.85	0.03	19	295.97	0.05	0.05	0.00
13.90	0.03	16	295.96	0.04	0.04	0.00
13.95	0.03	14	295.95	0.04	0.04	0.00
14.00	0.03	12	295.95	0.04	0.04	0.00
14.05	0.03	10	295.94	0.03	0.03	0.00
14.10	0.02	9	295.94	0.03	0.03	0.00
14.15	0.02	8	295.93	0.03	0.03	0.00
14.20	0.02	7	295.93	0.03	0.03	0.00
14.25	0.02	7	295.92	0.03	0.03	0.00
14.30	0.02	6	295.92	0.03	0.03	0.00
14.35	0.02	6	295.92	0.03	0.03	0.00
14.40	0.02	6	295.92	0.02	0.02	0.00
14.45	0.02	5	295.92	0.02	0.02	0.00
14.50	0.02	5	295.92	0.02	0.02	0.00
14.55	0.02	5	295.92	0.02	0.02	0.00
14.60	0.02	5	295.92	0.02	0.02	0.00
14.65	0.02	5	295.91	0.02	0.02	0.00
14.70	0.02	5	295.91	0.02	0.02	0.00
14.75	0.02	5	295.91	0.02	0.02	0.00
14.80	0.02	5	295.91	0.02	0.02	0.00
14.85	0.02	4	295.91	0.02	0.02	0.00
14.90	0.02	4	295.91	0.02	0.02	0.00
14.95	0.02	4	295.91	0.02	0.02	0.00
15.00	0.02	4	295.91	0.02	0.02	0.00

Hydrograph for Pond 59P: BMP #6C (North)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
10.00	0.01	0	295.87	0.00	0.00	0.00
10.05	0.01	1	295.88	0.00	0.00	0.00
10.10	0.01	1	295.88	0.00	0.00	0.00
10.15	0.01	1	295.88	0.00	0.00	0.00
10.20	0.01	1	295.88	0.01	0.01	0.00
10.25	0.01	1	295.88	0.01	0.01	0.00
10.30	0.01	1	295.89	0.01	0.01	0.00
10.35	0.01	2	295.89	0.01	0.01	0.00
10.40	0.01	2	295.89	0.01	0.01	0.00
10.45	0.01	2	295.89	0.01	0.01	0.00
10.50	0.01	2	295.89	0.01	0.01	0.00
10.55	0.01	2	295.89	0.01	0.01	0.00
10.60	0.01	2	295.89	0.01	0.01	0.00
10.65	0.01	2	295.89	0.01	0.01	0.00
10.70	0.01	2	295.89	0.01	0.01	0.00
10.75	0.01	2	295.89	0.01	0.01	0.00
10.80	0.01	3	295.90	0.01	0.01	0.00
10.85	0.01	3	295.90	0.01	0.01	0.00
10.90	0.01	3	295.90	0.01	0.01	0.00
10.95	0.01	3	295.90	0.01	0.01	0.00
11.00	0.01	4	295.90	0.01	0.01	0.00
11.05	0.01	4	295.90	0.01	0.01	0.00
11.10	0.01	4	295.90	0.01	0.01	0.00
11.15	0.01	4	295.91	0.01	0.01	0.00
11.20	0.01	5	295.91	0.01	0.01	0.00
11.25	0.01	5	295.91	0.01	0.01	0.00
11.30	0.01	6	295.91	0.01	0.01	0.00
11.35	0.02	6	295.91	0.01	0.01	0.00
11.40	0.02	7	295.92	0.01	0.01	0.00
11.45	0.02	7	295.92	0.01	0.01	0.00
11.50	0.02	8	295.92	0.01	0.01	0.00
11.55	0.02	9	295.93	0.01	0.01	0.00
11.60	0.03	11	295.93	0.02	0.02	0.00
11.65	0.05	15	295.94	0.02	0.02	0.00
11.70	0.07	22	295.96	0.02	0.02	0.00
11.75	0.09	31	295.98	0.03	0.03	0.00
11.80	0.11	44	296.01	0.03	0.03	0.00
11.85	0.16	62	296.03	0.04	0.04	0.00
11.90	0.21	88	296.06	0.05	0.05	0.00
11.95	0.26	121	296.10	0.05	0.05	0.00
12.00	0.22	154	296.13	0.06	0.06	0.00
12.05	0.12	173	296.15	0.07	0.07	0.00
12.10	0.06	177	296.15	0.07	0.07	0.00
12.15	0.04	174	296.15	0.07	0.07	0.00
12.20	0.03	168	296.14	0.06	0.06	0.00
12.25	0.03	163	296.14	0.06	0.06	0.00
12.30	0.03	157	296.13	0.06	0.06	0.00
12.35	0.03	151	296.13	0.06	0.06	0.00
12.40	0.02	144	296.12	0.06	0.06	0.00
12.45	0.02	138	296.12	0.06	0.06	0.00
12.50	0.02	131	296.11	0.06	0.06	0.00
12.55	0.02	124	296.10	0.06	0.06	0.00
12.60	0.02	118	296.10	0.05	0.05	0.00
12.65	0.02	111	296.09	0.05	0.05	0.00

14747 Infiltration BMPs WQV

Type II 24-hr WQV Rainfall=1.16"

Prepared by Jacobs

Printed 7/18/2017

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Hydrograph for Pond 59P: BMP #6C (North) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Secondary (cfs)
12.70	0.02	105	296.08	0.05	0.05	0.00
12.75	0.01	98	296.08	0.05	0.05	0.00
12.80	0.01	92	296.07	0.05	0.05	0.00
12.85	0.01	86	296.06	0.05	0.05	0.00
12.90	0.01	81	296.06	0.04	0.04	0.00
12.95	0.01	75	296.05	0.04	0.04	0.00
13.00	0.01	70	296.04	0.04	0.04	0.00
13.05	0.01	65	296.04	0.04	0.04	0.00
13.10	0.01	60	296.03	0.04	0.04	0.00
13.15	0.01	55	296.02	0.04	0.04	0.00
13.20	0.01	50	296.02	0.04	0.04	0.00
13.25	0.01	46	296.01	0.03	0.03	0.00
13.30	0.01	42	296.00	0.03	0.03	0.00
13.35	0.01	38	296.00	0.03	0.03	0.00
13.40	0.01	35	295.99	0.03	0.03	0.00
13.45	0.01	31	295.98	0.03	0.03	0.00
13.50	0.01	28	295.98	0.03	0.03	0.00
13.55	0.01	25	295.97	0.02	0.02	0.00
13.60	0.01	23	295.96	0.02	0.02	0.00
13.65	0.01	20	295.96	0.02	0.02	0.00
13.70	0.01	18	295.95	0.02	0.02	0.00
13.75	0.01	16	295.95	0.02	0.02	0.00
13.80	0.01	14	295.94	0.02	0.02	0.00
13.85	0.01	12	295.94	0.02	0.02	0.00
13.90	0.01	10	295.93	0.02	0.02	0.00
13.95	0.01	9	295.92	0.01	0.01	0.00
14.00	0.01	8	295.92	0.01	0.01	0.00
14.05	0.01	7	295.92	0.01	0.01	0.00
14.10	0.01	6	295.91	0.01	0.01	0.00
14.15	0.01	5	295.91	0.01	0.01	0.00
14.20	0.01	4	295.91	0.01	0.01	0.00
14.25	0.01	4	295.90	0.01	0.01	0.00
14.30	0.01	3	295.90	0.01	0.01	0.00
14.35	0.01	3	295.90	0.01	0.01	0.00
14.40	0.01	3	295.89	0.01	0.01	0.00
14.45	0.01	2	295.89	0.01	0.01	0.00
14.50	0.01	2	295.89	0.01	0.01	0.00
14.55	0.01	2	295.89	0.01	0.01	0.00
14.60	0.01	2	295.89	0.01	0.01	0.00
14.65	0.01	2	295.89	0.01	0.01	0.00
14.70	0.01	2	295.89	0.01	0.01	0.00
14.75	0.01	2	295.89	0.01	0.01	0.00
14.80	0.01	2	295.89	0.01	0.01	0.00
14.85	0.01	2	295.89	0.01	0.01	0.00
14.90	0.01	2	295.89	0.01	0.01	0.00
14.95	0.01	2	295.89	0.01	0.01	0.00
15.00	0.01	2	295.89	0.01	0.01	0.00

ATTACHMENT C:

MISCELLANEOUS INFILTRATION BMP CALCULATIONS



2 EXECUTIVE PARK DRIVE
BEDFORD, NH
603-666-7181

JOB NO. 14747 - Walpole/Charleston NH 12

SHEET NO.

1

OF

2

CALCULATED BY: JRB

DATE: 7/10/2017

CHECKED BY: RRP

DATE: 7/12/2017

Infiltration BMP Surface Area and Impounded Water Area Calculations

Ground Surface Area Calculations:

Infiltration BMP Area No.	From Station	To Station	Length (ft)	NH 12 Impervious Pavement					Stone Panel			Total Area (sf)
				LT Shoulder (ft)	LT Travel Way (ft)	RT Travel Way (ft)	RT Shoulder (ft)	Area (sf)	LT	RT	Area (sf)	
1A (South)	2012+25	2013+18	93.0	5	11	11	5	2976	4	4	744	3720
1A (North)	2013+18	2020+50	732.0	5	11	11	5	23424	4	4	5856	29280
1A (Total)								26400			6600	33000
1B (South)	2020+50	2021+51	101.0	5	11	11	5	6889.5	4	4	1648	8537.5
	2021+51	2022+01	50.0	6	11	11	5		4	4		
	2022+01	2022+56	55.0	9.5	11	11	5		4	4		
2A (North)	2025+03	2025+21	18.0	10.5	11	11	5	12227	4	4	3032	15259
	2025+21	2028+82	361.0	5	11	11	5		4	4		
2B (South)	2028+82	2033+31	449.0	5	11	11	5	14368	4	4	3592	17960
2B (North)	2033+31	2039+00	569.0	5	11	11	5	18208	4	4	4552	22760
2B (Total)								32576			8144	40720
3A (South)	2049+00	2053+00	400.0	5	11	11	5	12800	4	4	3200	16000
3A (North)	2053+00	2055+00	200.0	5	11	11	5	23444	4	4	5992	29436
	2055+00	2055+50	50.0	4.5	11	11	5		4	4		
	2055+50	2060+49	499.0	4	11	11	5		4	4		
3A (Total)								36244			0	45436
3B (South)	2060+49	2062+00	151.0	4	11	11	5	4681	4	4	1208	5889
4A (South)	2073+50	2086+80	1330.0	5	11	11	4	41230	4	4	10640	51870
4A (North)	2086+80	2089+00	220.0	5	11	11	4	6820	4	4	1760	8580
4A (Total)								48050			12400	60450
5A (North)	2091+60	2092+00	40.0	4	11	11	5.4	23721	4	4	6000	29721
	2092+00	2094+30	230.0	4	11	11	5		4	4		
	2094+30	2094+80	50.0	4.5	11	11	5		4	4		
	2094+80	2099+10	430.0	5	11	11	5		4	4		
5B (South)	2099+10	2103+90	480.0	5	11	11	5	15360	4	4	3840	19200
5B (North)	2103+90	2105+40	150.0	5	11	11	5	4800	4	4	1200	6000
5B (Total)								20160			5040	25200
6A (North)	2105+95	2108+68	273.0	5	11	11	5	8736	4	4	2184	10920
6B (South)	2108+68	2114+40	572.0	5	11	11	5	18304	4	4	4576	22880
6B (North)	2114+40	2121+61	721.0	5	11	11	5	23072	4	4	5768	28840
6B (Total)								41376			10344	51720
6C (South)	2121+61	2123+10	149.0	5	11	11	5	20541.64	4	4	5256	25797.64
	2123+10	2123+60	50.0	4.5	11	11	5		4	4		
	2123+60	2128+10	450.0	4	11	11	5		4	4		
	2128+10	2128+18	8.0	4.08	11	11	5		4	4		
6C (North)	2128+18	2128+60	42.0	4.58	11	11	5	5806.36	4	4	1456	7262.36
	2128+60	2130+00	140.0	5	11	11	5		4	4		
6C (Total)								26348			6712	33060



2 EXECUTIVE PARK DRIVE
BEDFORD, NH
603-666-7181

JOB NO. 14747 - Walpole/Charleston NH 12

SHEET NO. 2

OF 2

CALCULATED BY: JRB

DATE: 7/10/2017

CHECKED BY: RRP

DATE: 7/12/2017

Infiltration BMP Surface Area and Impounded Water Area Calculations

Surface Area of Water in BMP

Infiltration BMP Area No.	Bottom Station	Bottom elevation (at low point)	Top of Dam Elevation	Surface Area (sf)		Bottom elevation + 12"	Surface Area (sf)		Top of BMP elevation	Surface Area (sf)
1A (South)	2013+18	316.60	317.10	3344		317.60	3660		318.10	3660
1A (North)	2013+18	316.60	317.10	6208		317.60	10800		318.10	14800
1B (South)	2022+54.5	319.02	319.52	5336		320.02	8120		320.52	8120
2A (North)	2025+05	320.52	321.02	2748		321.52	4824		322.02	6820
2B (South)	2033+31	321.20	321.70	5544		322.20	10136		322.70	12528
2B (North)	2033+31	321.20	322.03	3116		322.20	3680		322.70	5036
3A (South)	2053+00	323.81	324.31	7508		324.81	10544		325.31	12872
3A (North)	2053+00	323.81	324.31	7012		324.81	10985		325.31	14904
3B (South)	2061+98.5	326.17	326.67	5764		327.17	5764		327.67	5764
4A (South)	2086+80	293.82	294.90	11684		N/A	N/A		295.32	15779
4A (North)	2086+80	293.82	294.32	6954		294.82	8522		295.32	8522
5A (North)	2091+61.5	295.34	296.17	8330		296.34	10249		296.84	15545
5B (South)	2103+90	296.79	297.29	8136		297.79	14800		298.29	19148
5B (North)	2103+90	296.79	297.29	5940		297.79	5940		298.29	5940
6A (North)	2105+96.5	297.24	297.74	6668		298.24	10820		298.74	10820
6B (South)	2114+40	295.71	296.38	7768		296.71	10492		297.21	14492
6B (North)	2114+40	295.71	296.38	8564		296.71	11284		297.21	15460
6C (South)	2128+18	295.86	296.53	7036		296.86	9687		297.36	13587
6C (North)	2128+18	295.86	296.36	6979		296.86	6979		297.36	6979



2 EXECUTIVE PARK DRIVE
BEDFORD, NH
603-666-7181

JOB NO. 14747 - Walpole/Charleston NH 12
SHEET NO. 1 OF 1
CALCULATED BY: JRB DATE: 7/10/2017
CHECKED BY: RRP DATE: 7/12/2017

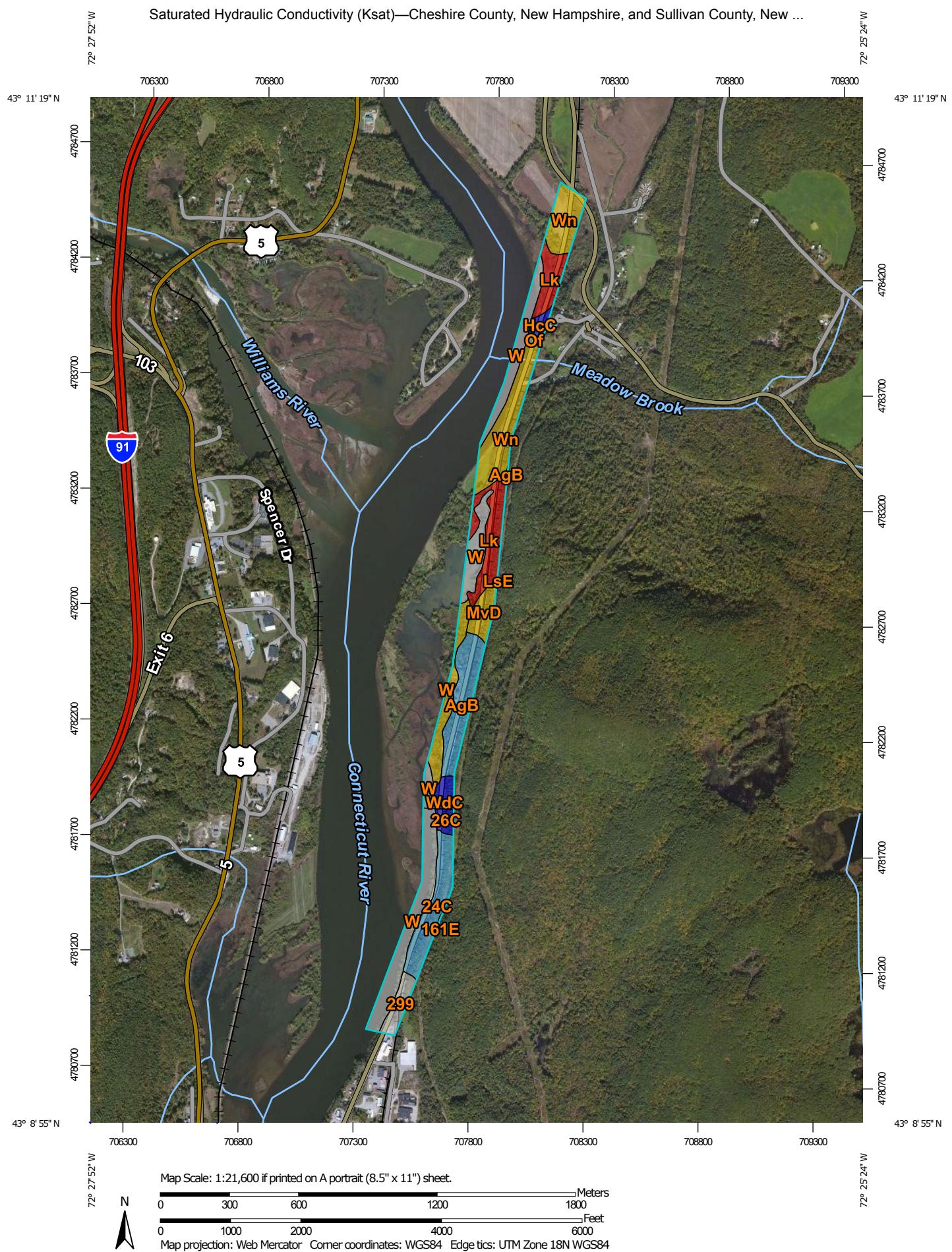
Determine Default Subgrade Infiltration Rates

Refer to NH Stormwater Manual, Volume 2, Chapter 2.4 for calculation guidelines

Ksat values were obtained from NRCS Soils Survey (online).

Infiltration BMP Area No.	Primary Soil Type	Ksat value (micrometer/sec)	Conversion factor to in/hr	Safety Factor	Default Infiltration Rate (in/hr)
1	Agawam	77.64	0.1417	0.5	5.6
2	Agawam	77.64	0.1417	0.5	5.6
3	Agawam	77.64	0.1417	0.5	5.6
4	Limerick	9.17	0.1417	0.5	0.7
5	Winooski	23.28	0.1417	0.5	1.7
6	Winooski	23.28	0.1417	0.5	1.7

Saturated Hydraulic Conductivity (Ksat)—Cheshire County, New Hampshire, and Sullivan County, New ...



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

5/7/2017
Page 1 of 4

MAP LEGEND

Area of Interest (AOI)		Area of Interest (AOI)	Transportation		Rails
Soils					Interstate Highways
Soil Rating Polygons					US Routes
		<= 9.1722			Major Roads
		> 9.1722 and <= 23.2833			Local Roads
		> 23.2833 and <= 58.5455			Background
		> 58.5455 and <= 77.6364			Aerial Photography
		> 77.6364 and <= 100.0000			
		Not rated or not available			
Soil Rating Lines					
		<= 9.1722			
		> 9.1722 and <= 23.2833			
		> 23.2833 and <= 58.5455			
		> 58.5455 and <= 77.6364			
		> 77.6364 and <= 100.0000			
		Not rated or not available			
Soil Rating Points					
		<= 9.1722			
		> 9.1722 and <= 23.2833			
		> 23.2833 and <= 58.5455			
		> 58.5455 and <= 77.6364			
		> 77.6364 and <= 100.0000			
		Not rated or not available			
Water Features					
		Streams and Canals			

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cheshire County, New Hampshire
Survey Area Date: Version 19, Sep 15, 2016

Soil Survey Area: Sullivan County, New Hampshire
Survey Area Date: Version 21, Sep 15, 2016

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 10, 2011—Oct 8, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Saturated Hydraulic Conductivity (Ksat)

Saturated Hydraulic Conductivity (Ksat)— Summary by Map Unit — Cheshire County, New Hampshire (NH005)				
Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
24C	Agawam fine sandy loam, 8 to 15 percent slopes	77.6364	12.0	10.1%
26C	Windsor loamy sand, 8 to 15 percent slopes	100.0000	1.9	1.6%
161E	Lyman-Turbridge-Rock outcrop complex, 25 to 60 percent slopes	8.7324	0.1	0.1%
299	Udorthents, smoothed		4.2	3.5%
W	Water		14.9	12.6%
Subtotals for Soil Survey Area			33.1	27.8%
Totals for Area of Interest			118.9	100.0%

Saturated Hydraulic Conductivity (Ksat)— Summary by Map Unit — Sullivan County, New Hampshire (NH019)				
Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
AgB	Agawam fine sandy loam, 3 to 8 percent slopes	77.6364	13.0	11.0%
HcC	Haven very fine sandy loam, 8 to 15 percent slopes	96.8421	1.8	1.6%
Lk	Limerick silt loam	9.1722	16.2	13.7%
LsE	Lyman-Monadnock-Rock outcrop complex, 25 to 50 percent slopes, very stony	8.7324	0.0	0.0%
MvD	Monadnock-Lyman stony fine sandy loams, 15 to 25 percent slopes	16.8173	4.7	4.0%
Of	Ondawa fine sandy loam, 0 to 3 percent slopes, occasionally flooded	58.5455	0.5	0.4%
W	Water		16.4	13.8%
WdC	Windsor loamy sand, 8 to 15 percent slopes	100.0000	2.8	2.3%
Wn	Winooski silt loam	23.2833	30.2	25.4%
Subtotals for Soil Survey Area			85.8	72.2%
Totals for Area of Interest			118.9	100.0%



Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): All Layers (Weighted Average)



2 EXECUTIVE PARK DRIVE
BEDFORD, NH
603-666-7181

JOB NO. 14747 - Walpole/Charleston NH 12
SHEET NO. 1 OF 1
CALCULATED BY: JRB DATE: 7/10/2017
CHECKED BY: RRP DATE: 7/12/2017

Determine Area of Perforations in Corrugated Plastic Pipe

References:

ADS Technical Note, Dual Wall HDPE Perforation Patterns, TN 1.01 (January 2015)
Springfield Plastics Inc Dual Wall Drainage Pipe Technical Data Sheet

Calculate Perforations Area for 12" diameter pipe:

12" pipe is used for BMP transverse drainage without any flow from the shared ditch or offsite.

Drainage Notes B1, B2, B3, B4 & B5:

Number of valleys per ft of pipe: 6
Number of perforations per valley: 3
Pipe length: 34 If
Total number of perforations: 612

Perforation hole diameter: 0.313 in
Area of each perforation: 0.0707 sq. in.

Total area of perforations: 43.2684 sq in.
0.300475 sq ft.

Equivalent single diameter opening: 7.424216 in

Calculate Perforations Area for 15" diameter pipe:

15" pipe is used for combining BMP transverse drainage and flow from the shared ditch or offsite.

Drainage Notes 103, 112, 118, 131:

Number of valleys per ft of pipe: 4.5
Number of perforations per valley: 3
Pipe length: 40 If
Total number of perforations: 540

Perforation hole diameter: 0.313 in
Area of each perforation: 0.0707 sq. in.

Total area of perforations: 38.178 sq in.
0.265125 sq ft.

Equivalent single diameter opening: 6.973836 in

Drainage Notes 153, 160, 168:

4.5
3
32 If
432

0.313 in
0.0707 sq. in.

30.5424 sq in.
0.2121 sq ft.

6.237589 in



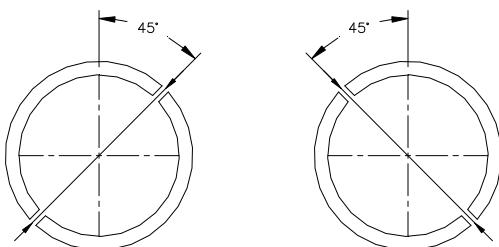
TECHNICAL NOTE

Single Wall HDPE Perforation Patterns

TN 1.02
October 2008

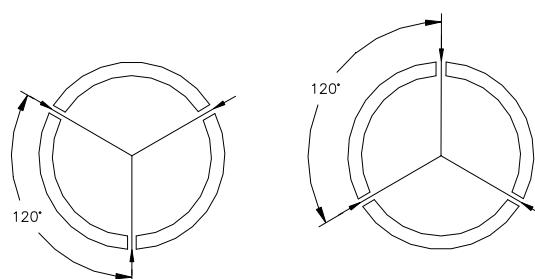
Nominal I.D.		Perforation Type	Maximum Slot Length or Diameter		Maximum Slot Width		Minimum Inlet Area		Pattern Type
in	mm		in	mm	in	mm	in ² /ft	cm ² /m	
3	75	Slot	0.875	22	0.120	3	1.0	21	A
4	100	Slot	0.875	22	0.120	3	1.0	21	B
5	125	Slot	0.875	22	0.120	3	1.0	21	B
6	150	Slot	0.875	22	0.120	3	1.0	21	B
8	200	Slot	1.18	30	0.120	3	1.0	21	B
10	250	Slot	1.18	30	0.120	3	1.0	21	B
12	300	Slot	1.50	38	0.118	3	1.5	32	B
12	300	Circular	0.313	8	-	-	1.5	32	C
15	375	Circular	0.313	8	-	-	1.5	32	C
18	450	Circular	0.313	8	-	-	1.5	32	C
24	600	Circular	0.313	8	-	-	2.0	42	D

TYPE A PATTERN



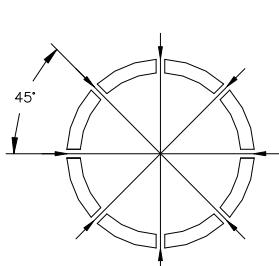
2 SLOT PATTERN
PERFORATIONS
ROTATED 90° EVERY
OTHER VALLEY

TYPE B PATTERN



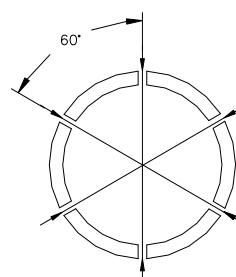
3 SLOT PATTERN
PERFORATIONS
ROTATED 60° EVERY
OTHER VALLEY

TYPE C PATTERN



8 HOLE PATTERN

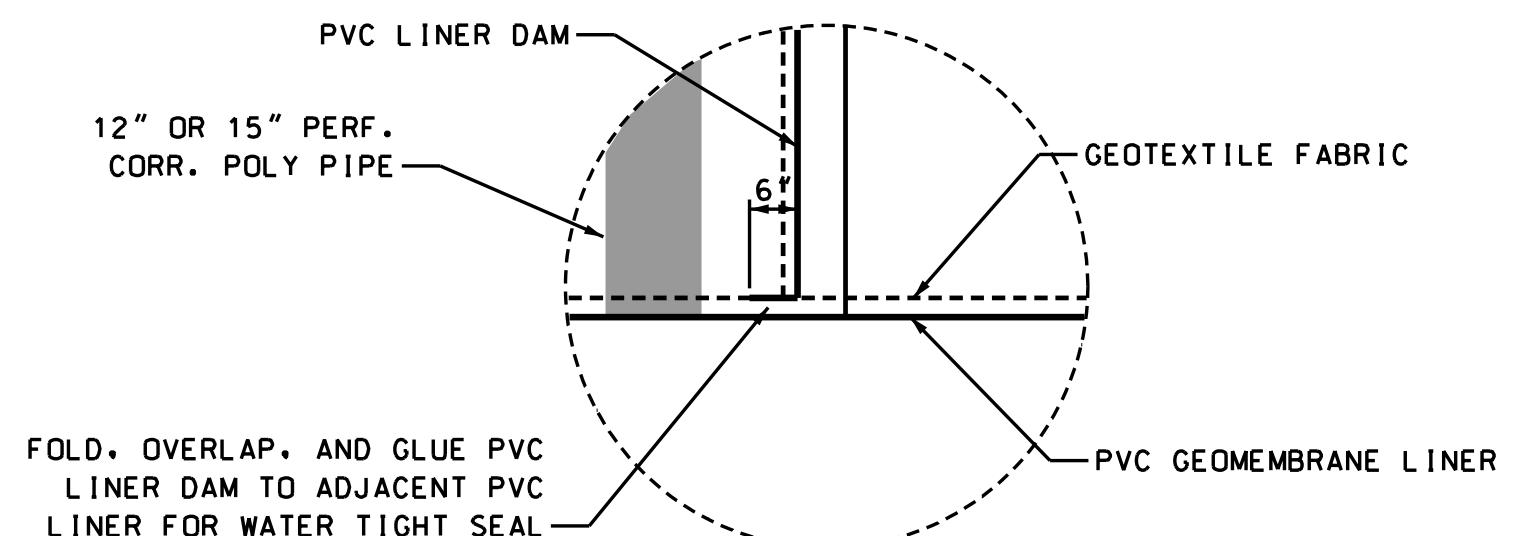
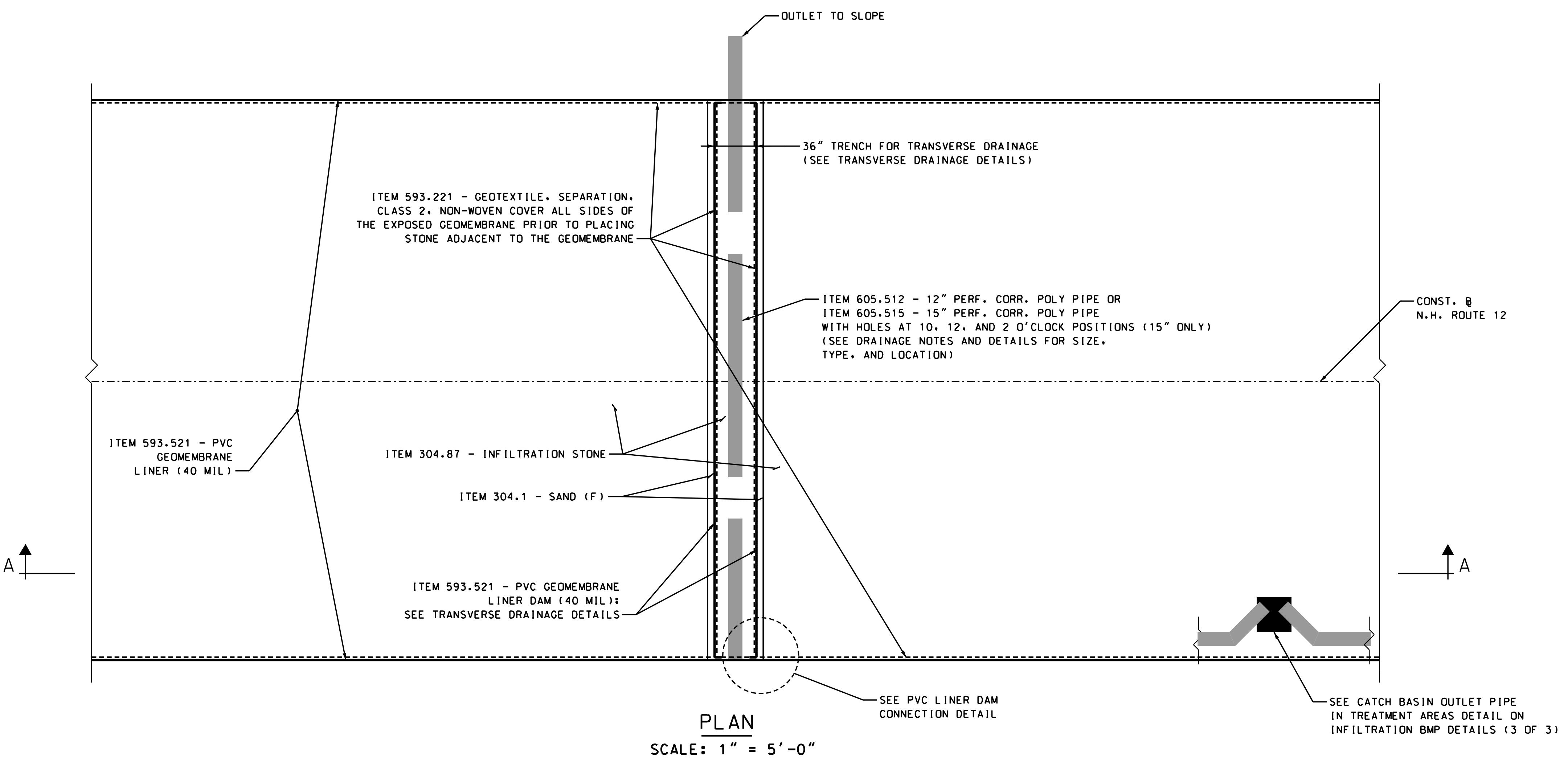
TYPE D PATTERN



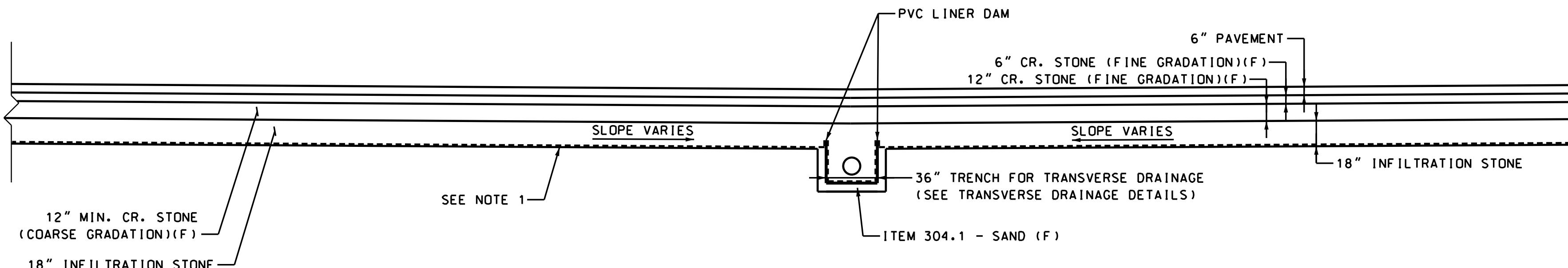
6 HOLE PATTERN

ATTACHMENT D:

INFILTRATION BMP DESIGN DETAILS AND PROFILE



PVC LINER DAM CONNECTION
(PLAN VIEW)
NOT TO SCALE

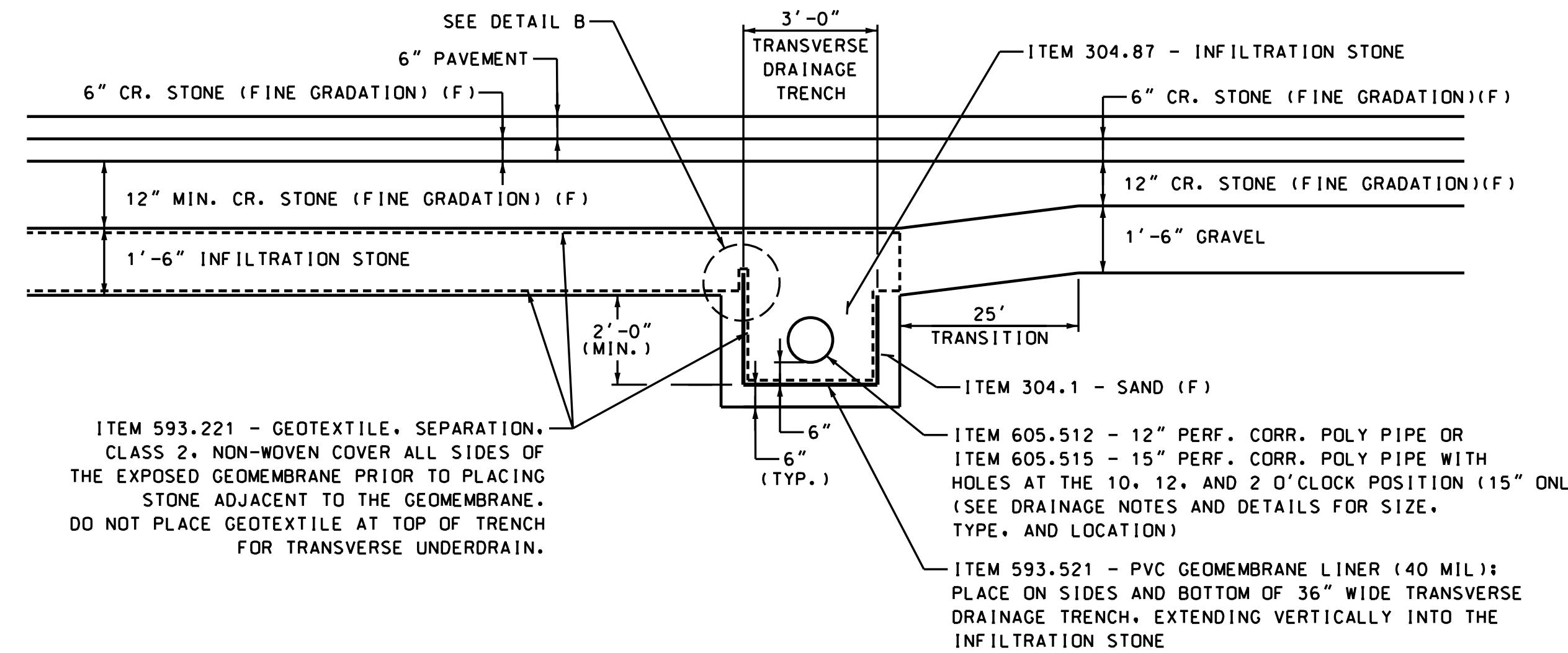
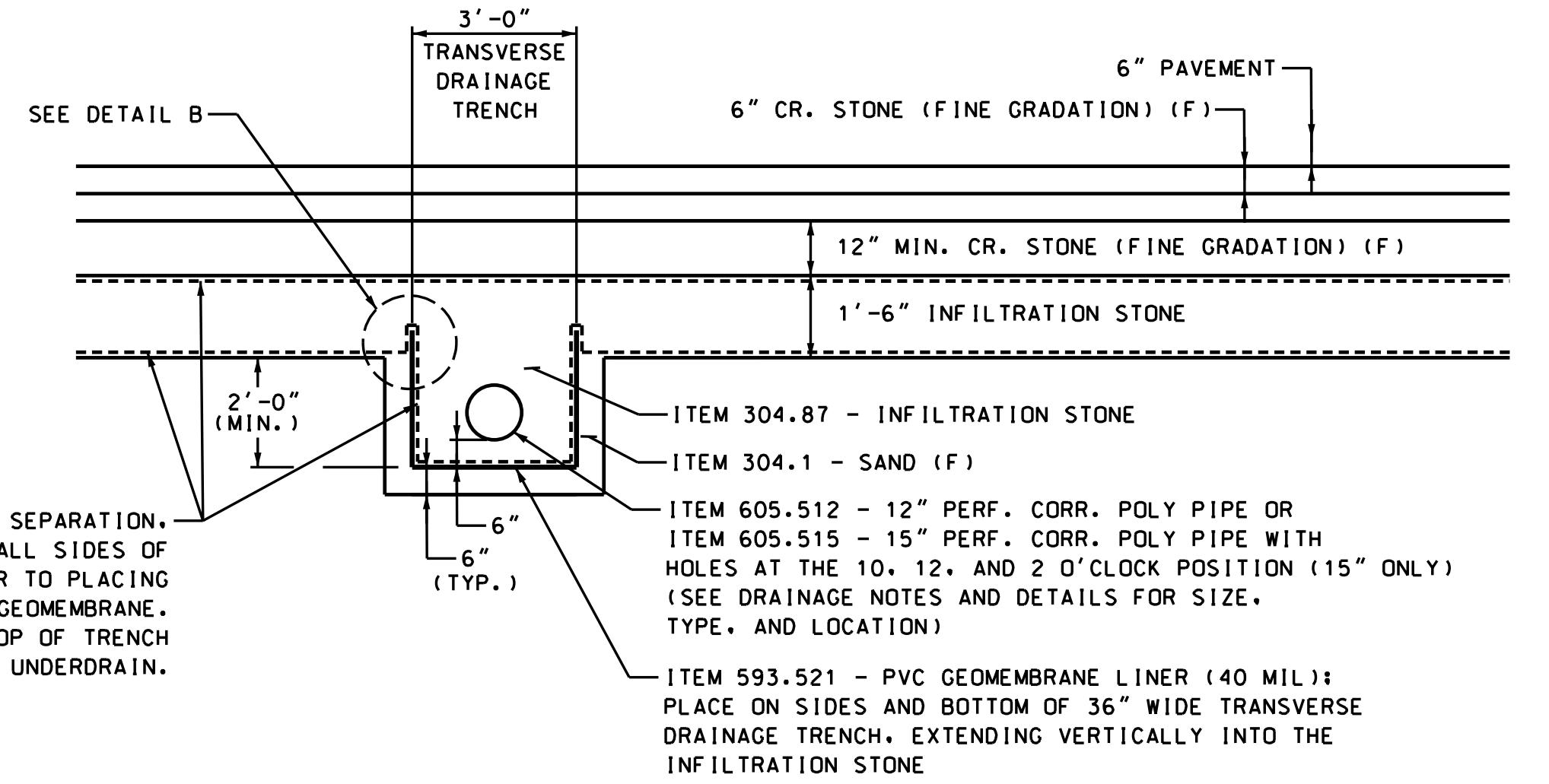


LONGITUDINAL SECTION A-A

SCALE: 1" = 5'-0"

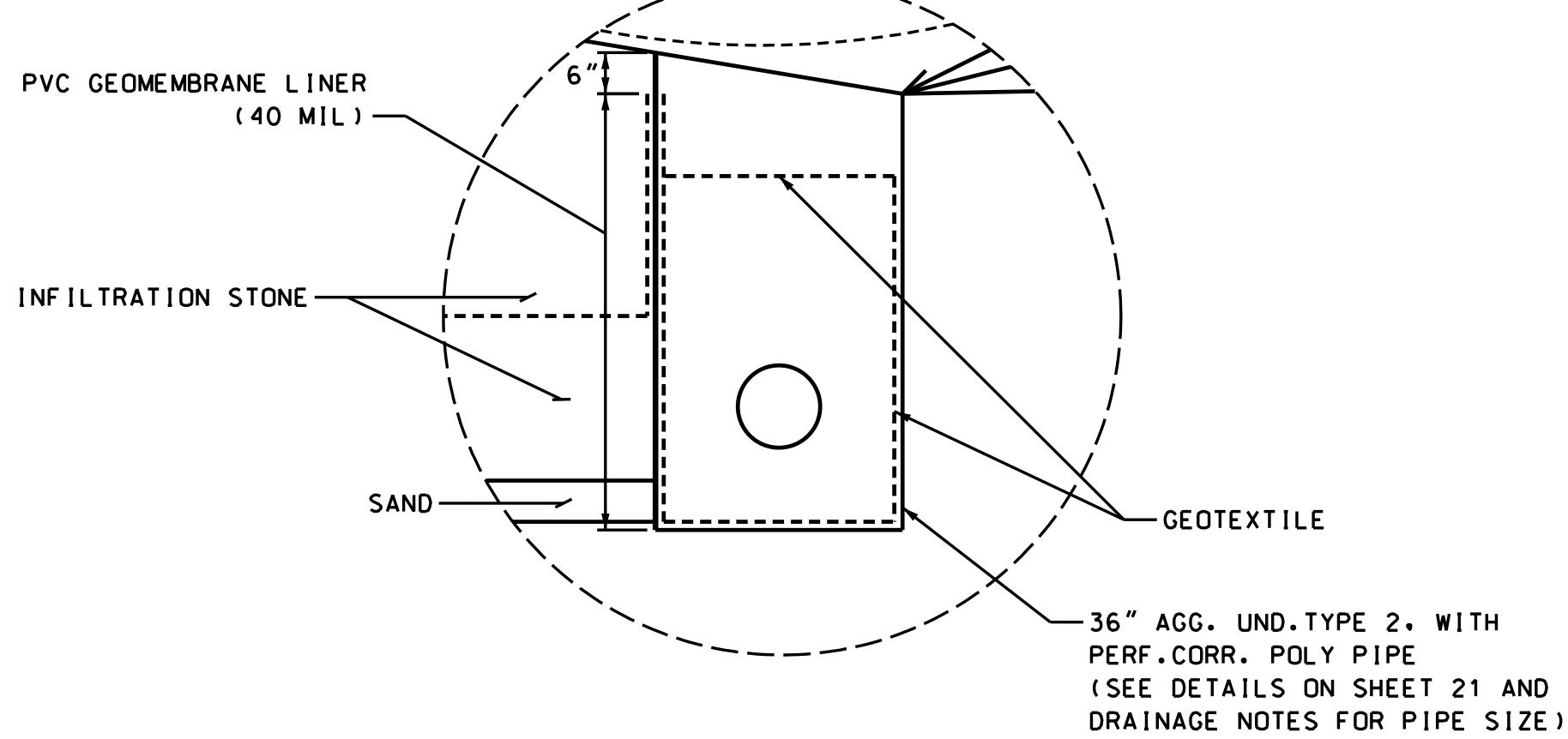
NOTE:
1. SEE PROFILE FOR BOTTOM OF INFILTRATION STONE ELEVATIONS.

STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
INFILTRATION BMP DETAILS (1 OF 3)			
DGN	STATE PROJECT NO.	sheet no.	Total Sheets
14747TY03	14747	14	220



TRANSVERSE DRAINAGE AT LOW POINT

NOT TO SCALE

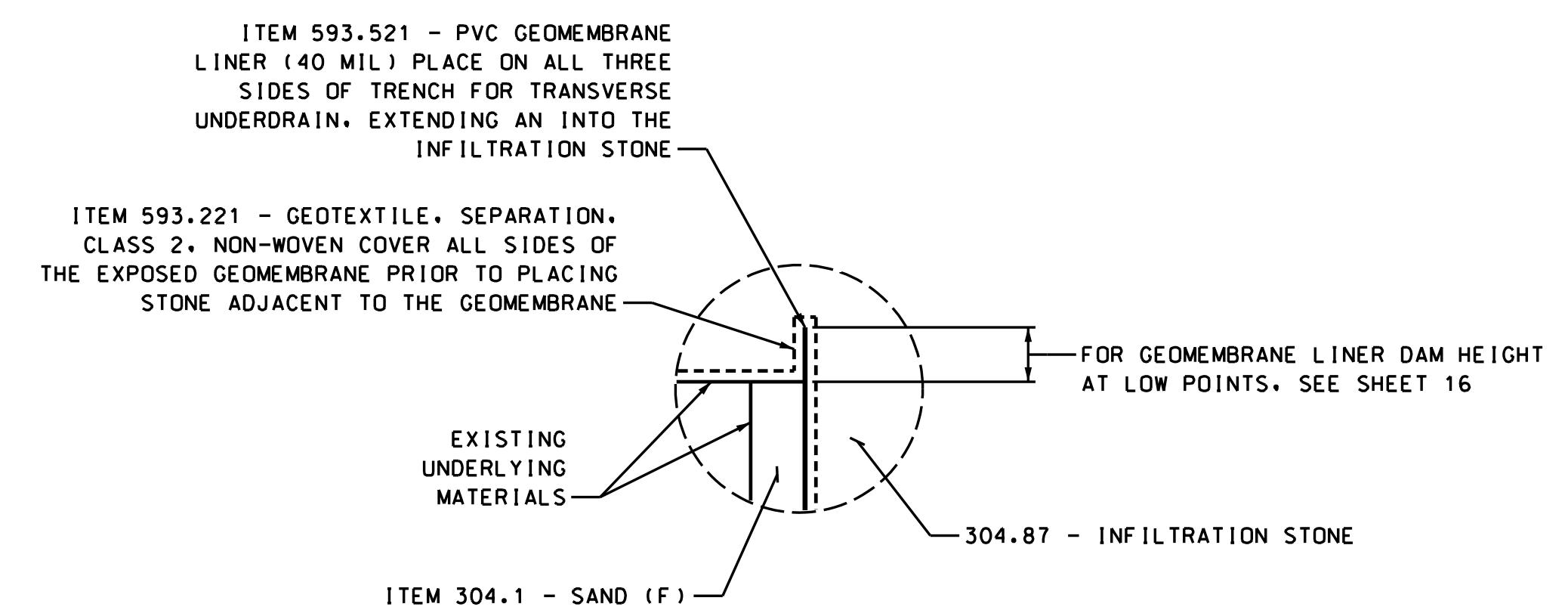


DETAIL A
NOT TO SCALE

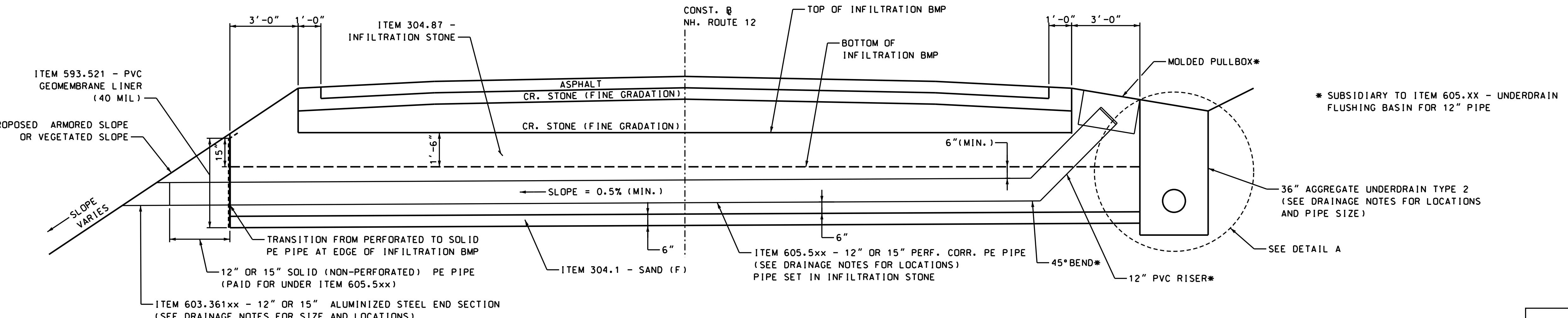
TRANSVERSE DRAINAGE AT TRANSITION

TO NON-TREATMENT AREA

NOT TO SCALE



DETAIL B
NOT TO SCALE



36" TRANSVERSE DRAINAGE TRENCH W/ 12" OR 15" PE PIPE

NOT TO SCALE

TRANSVERSE DRAINAGE DETAILS

SEE N.H. ROUTE 12 PROFILE AND DRAINAGE NOTES FOR LOCATIONS

STATE OF NEW HAMPSHIRE

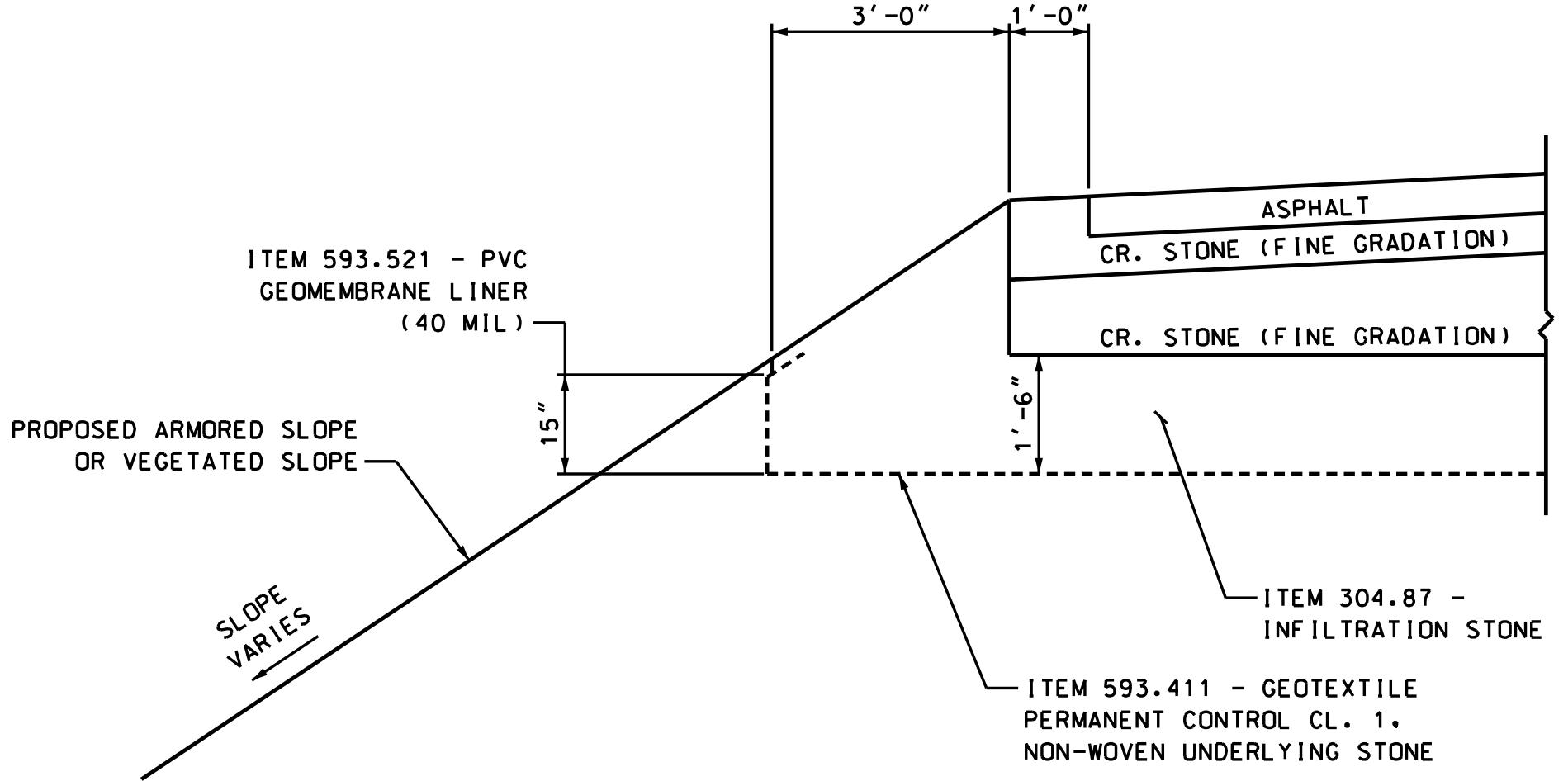
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

INFILTRATION BMP DETAILS (2 OF 3)

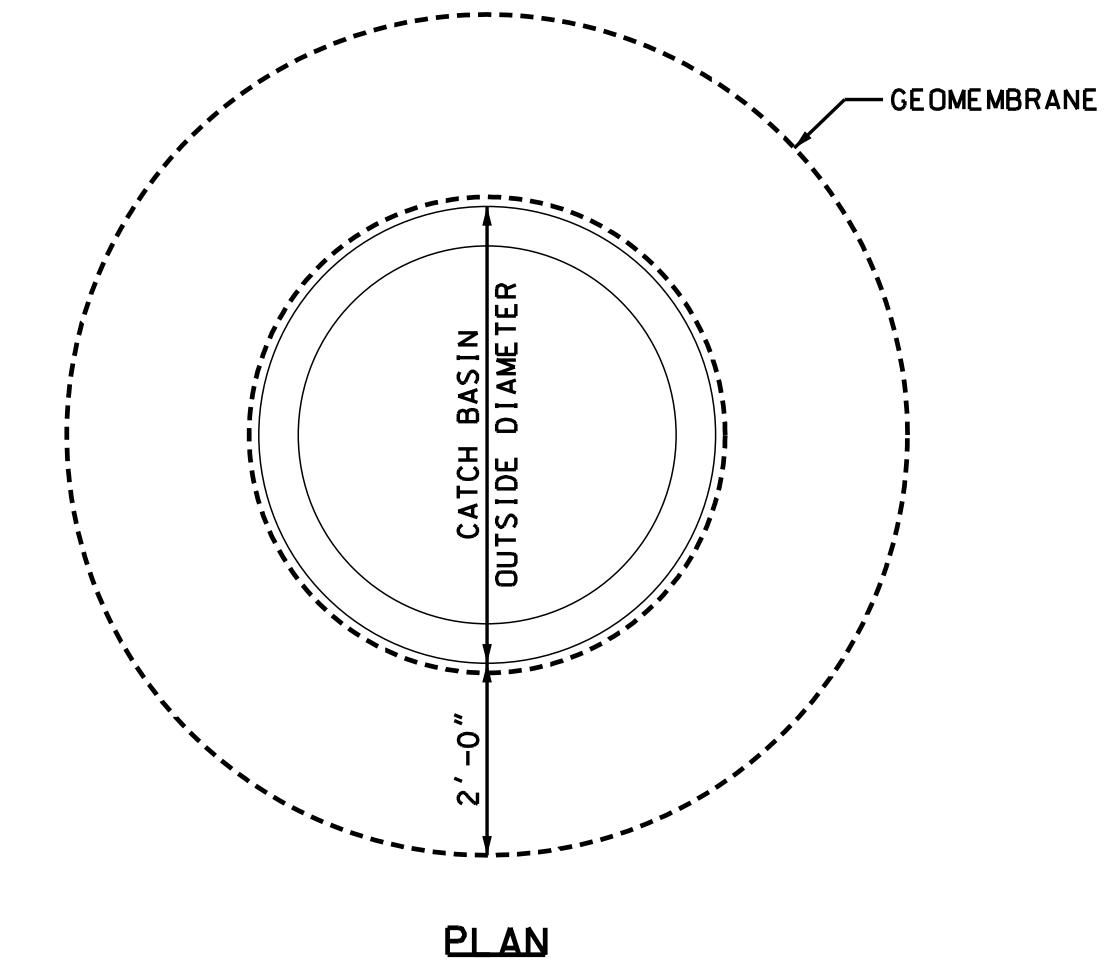
DGN	STATE PROJECT NO.	sheet no.	Total Sheets
14747TY04	14747	15	220

GEOMEMBRANE LINER DAM HEIGHTS AT LOW POINTS				
TREATMENT AREA	DAM NO.	STATION	DAM HEIGHT	COMMENTS
1A	1	2013+16.5	6"	AT TRANSVERSE DRAINAGE TRENCH 103
1A	2	2013+19.5	6"	AT TRANSVERSE DRAINAGE TRENCH 103
1B	3	2022+53	6"	AT TRANSVERSE DRAINAGE TRENCH B1
2A	4	2025+05	6"	AT TRANSVERSE DRAINAGE TRENCH 112
2B	5	2033+29.5	6"	AT TRANSVERSE DRAINAGE TRENCH 118
2B	6	2033+32.5	10"	AT TRANSVERSE DRAINAGE TRENCH 118
3A	7	2052+98.5	6"	AT TRANSVERSE DRAINAGE TRENCH 131
3A	8	2053+01.5	6"	AT TRANSVERSE DRAINAGE TRENCH 131
3B	9	2061+97	6"	AT TRANSVERSE DRAINAGE TRENCH 135
4A	10	2086+78.5	13"	AT TRANSVERSE DRAINAGE TRENCH B3
4A	11	2086+81.5	6"	AT TRANSVERSE DRAINAGE TRENCH B3
5A	12	2091+63	10"	AT TRANSVERSE DRAINAGE TRENCH B4
5B	13	2103+88.5	6"	AT TRANSVERSE DRAINAGE TRENCH 153
5B	14	2103+91.5	6"	AT TRANSVERSE DRAINAGE TRENCH 153
6A	15	2105+96.5	6"	AT TRANSVERSE DRAINAGE TRENCH B5
6B	16	2114+38.5	8"	AT TRANSVERSE DRAINAGE TRENCH 160
6B	17	2114+41.5	8"	AT TRANSVERSE DRAINAGE TRENCH 160
6C	18	2128+16.5	8"	AT TRANSVERSE DRAINAGE TRENCH 168
6C	19	2128+19.5	6"	AT TRANSVERSE DRAINAGE TRENCH 168

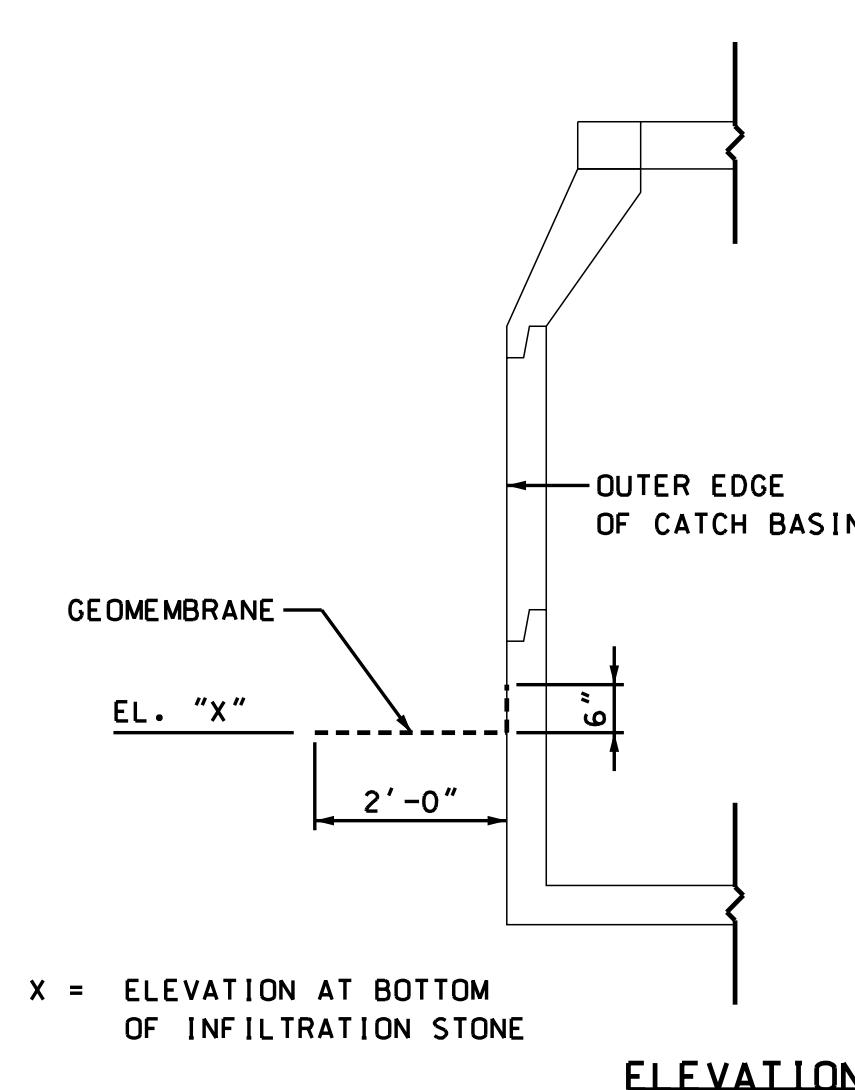
GEOMEMBRANE LINER DAM HEIGHT AT LOW POINTS
NOT TO SCALE



PVC GEOMEMBRANE LINER AT
LEFT EDGE OF INFILTRATION BMP
SCALE: 1/2" = 1'-0"



PLAN

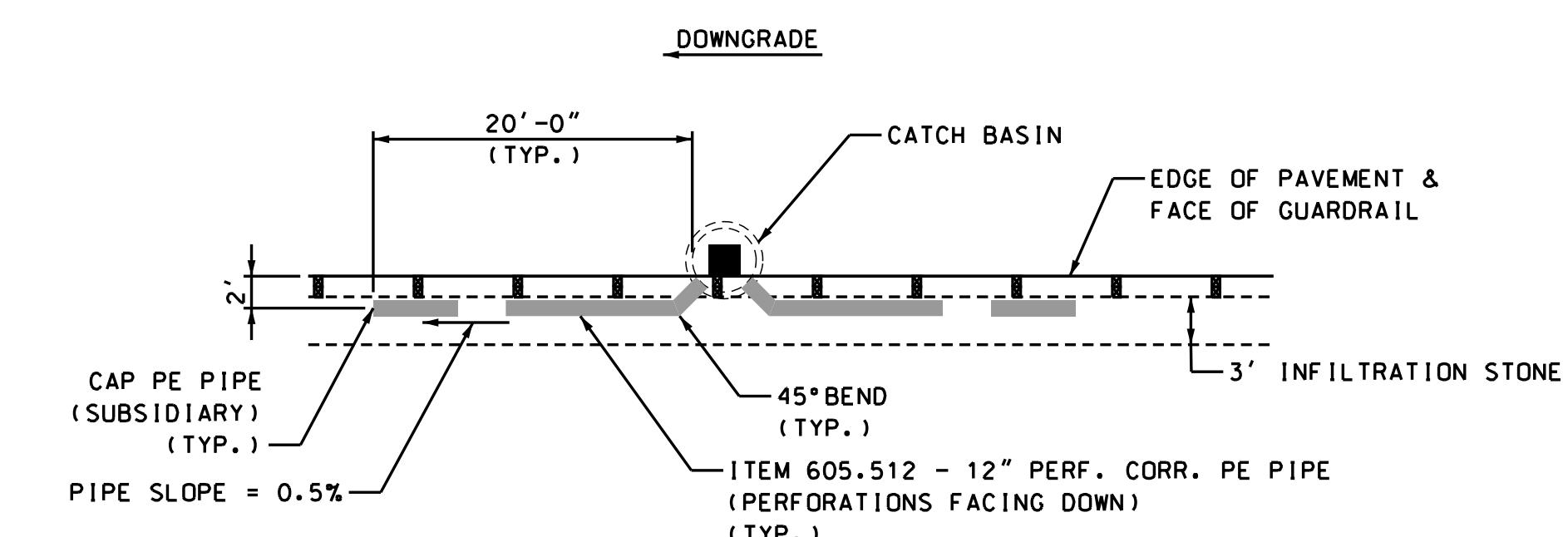


X = ELEVATION AT BOTTOM
OF INFILTRATION STONE

ELEVATION

GEOMEMBRANE DETAIL FOR
DRAINAGE STRUCTURES LOCATED
INSIDE TREATMENT SWALE

SCALE: 1/2" = 1'-0"



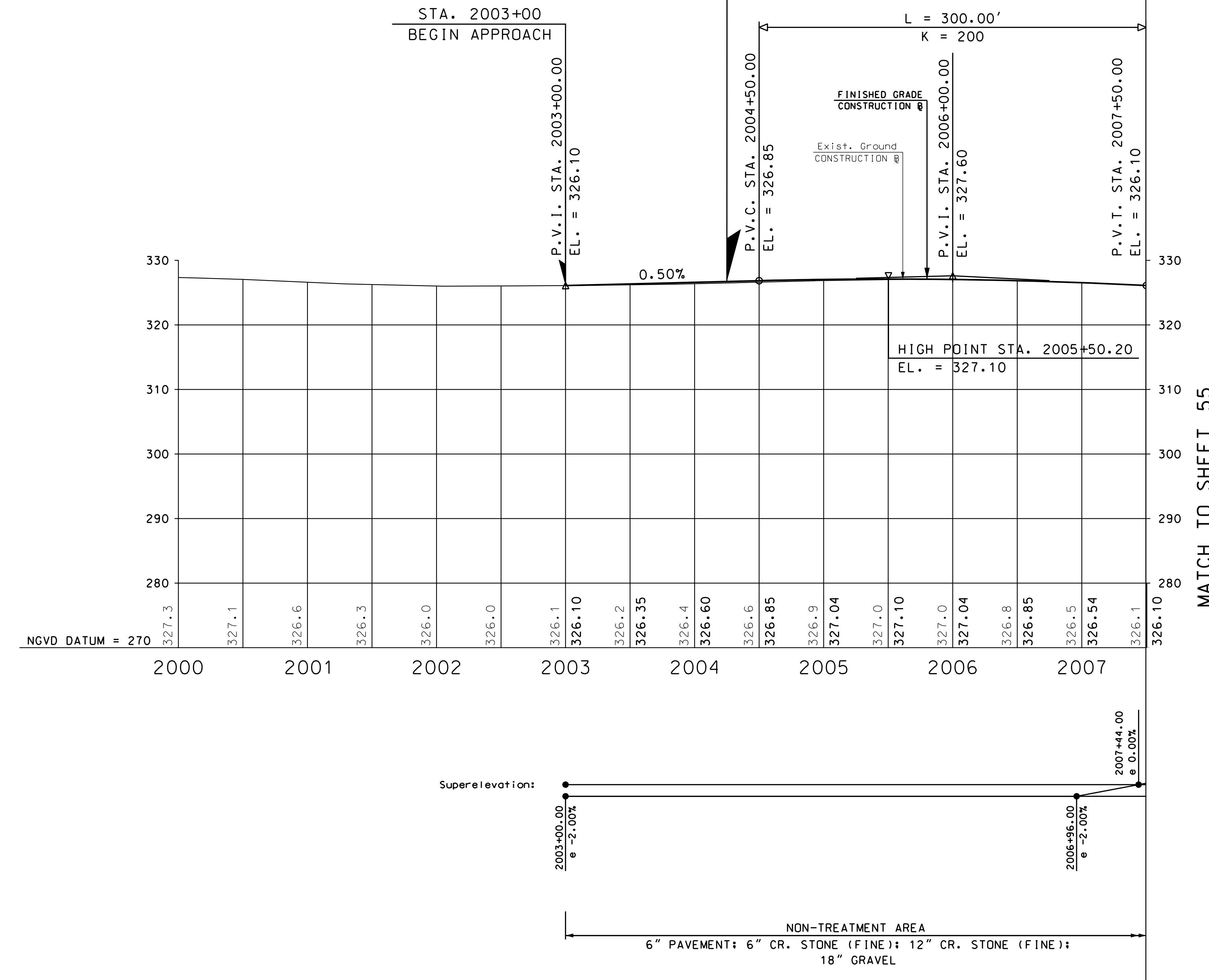
CATCH BASIN OUTLET PIPE IN TREATMENT AREAS
NOT TO SCALE

STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
INFILTRATION BMP DETAILS (3 OF 3)			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
14747TY05	14747	16	220

STA. 2004+25

BEGIN CONSTRUCTION

END APPROACH



NOTE:	
XXX.X	= EXISTING GROUND
XXX.XX	= PROPOSED TOP OF ROADWAY
(XXX.XX)	= PROPOSED BOTTOM OF INFILTRATION STONE

PROFILE - N.H. ROUTE 12

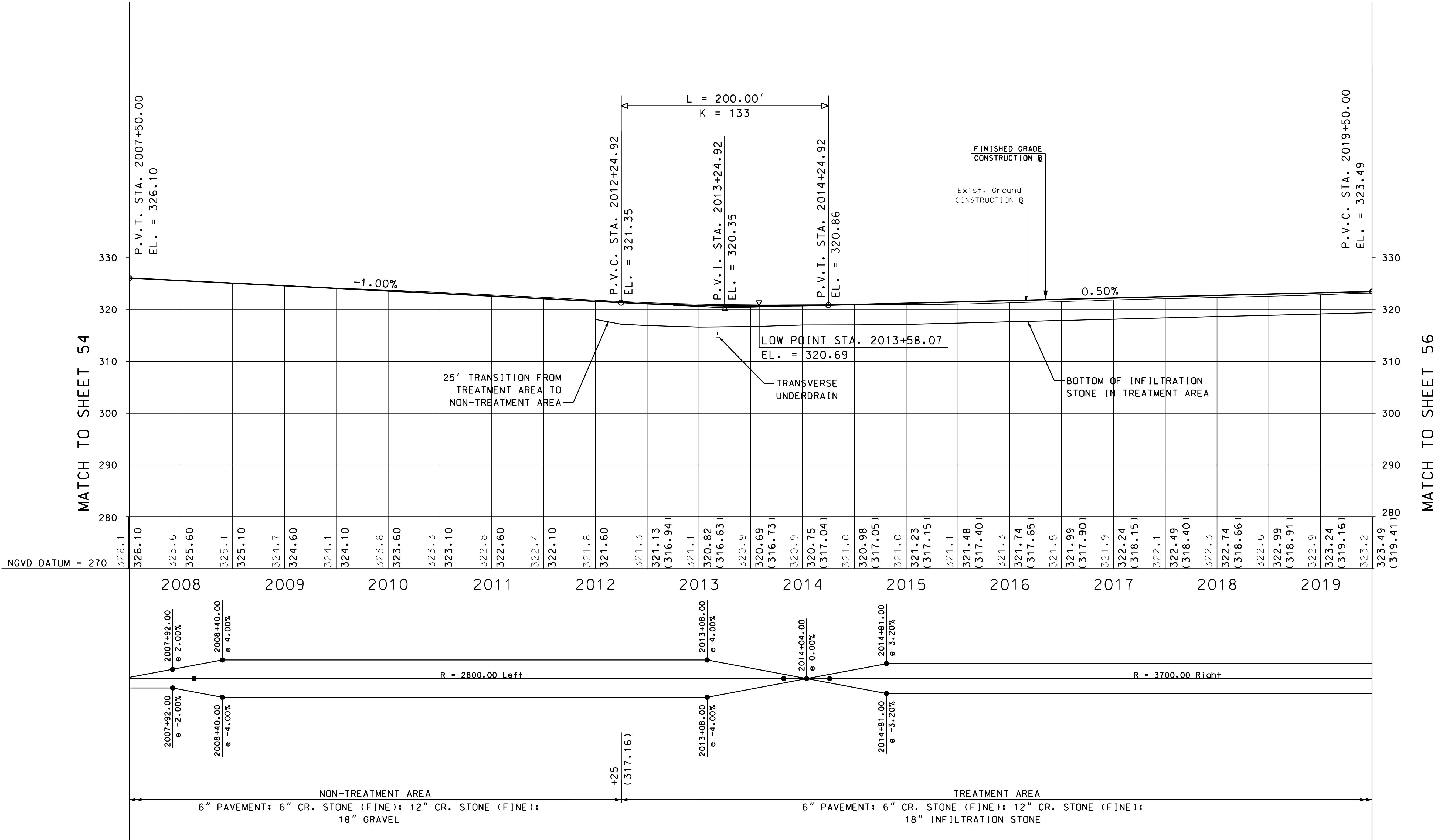
SCALE:
1" = 50' HORIZ.
1" = 10' VERT.

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

PROFILE
N.H. ROUTE 12

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PRO01	14747PRO_MC8M	14747	54	220



NOTE:

XXX.X = EXISTING GROUND

XXX.XX = PROPOSED TOP OF ROADWAY

(XXX.XX) = PROPOSED BOTTOM OF
INFILTRATION STONE

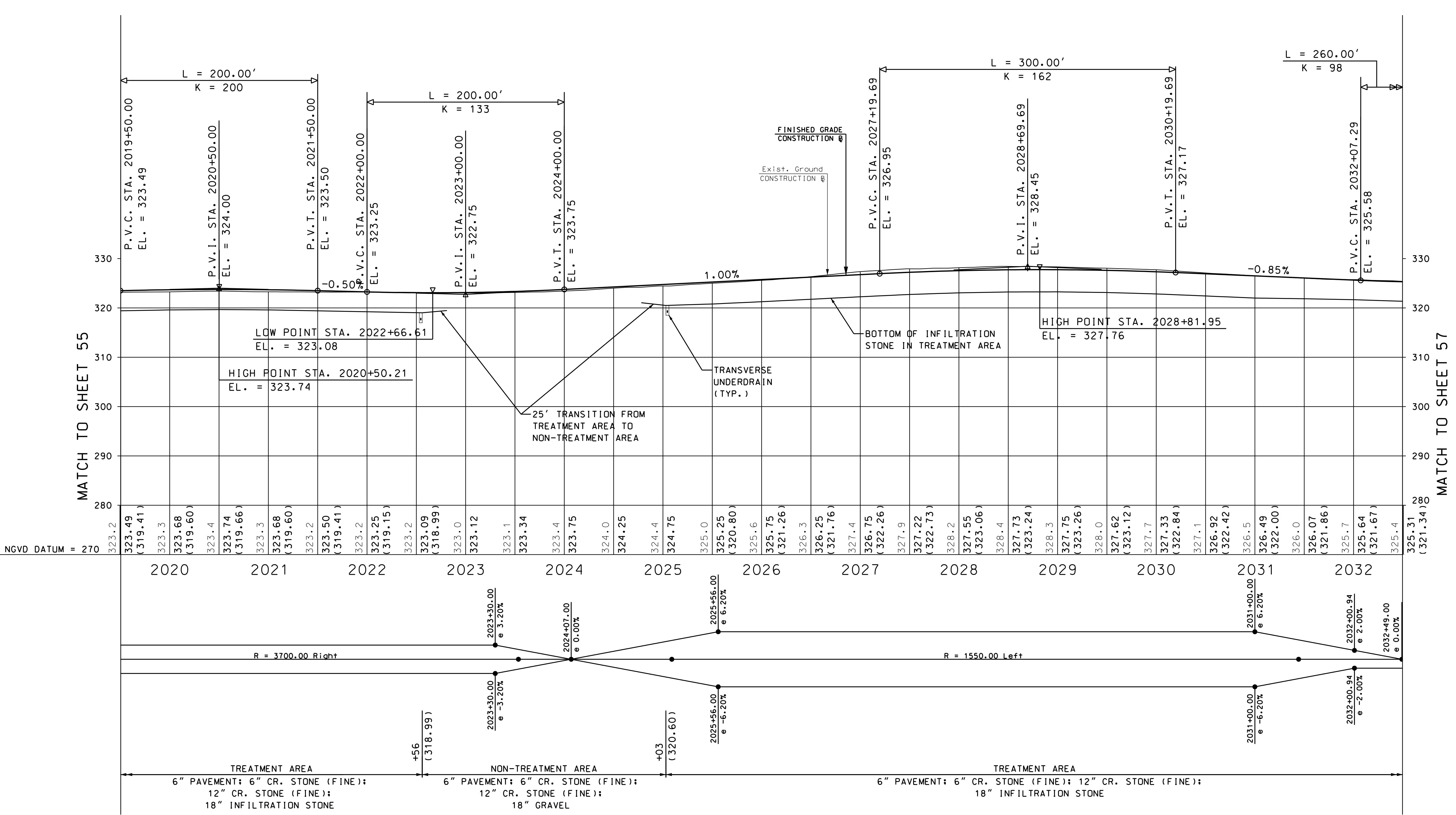
PROFILE - N.H. ROUTE 12

SCALE:
1 " = 50' HORIZ
1 " = 10' VERT

STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
<i>PROFILE N.H. ROUTE 12</i>				
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PR002	14747PRO_MC8M	14747	55	220

SDR PROCESSED	S. GUNN	DATE	05-2017	REVISIONS AFTER PROPOSAL
NEW DESIGN	A. SEAMAN	DATE	05-2017	STATION
SHEET CHECKED	C. MERCER	DATE	05-2017	DESCRIPTION
AS BUILT DETAILS				DATE

MATCH TO SHEET 55



PROFILE - N.H. ROUTE 12

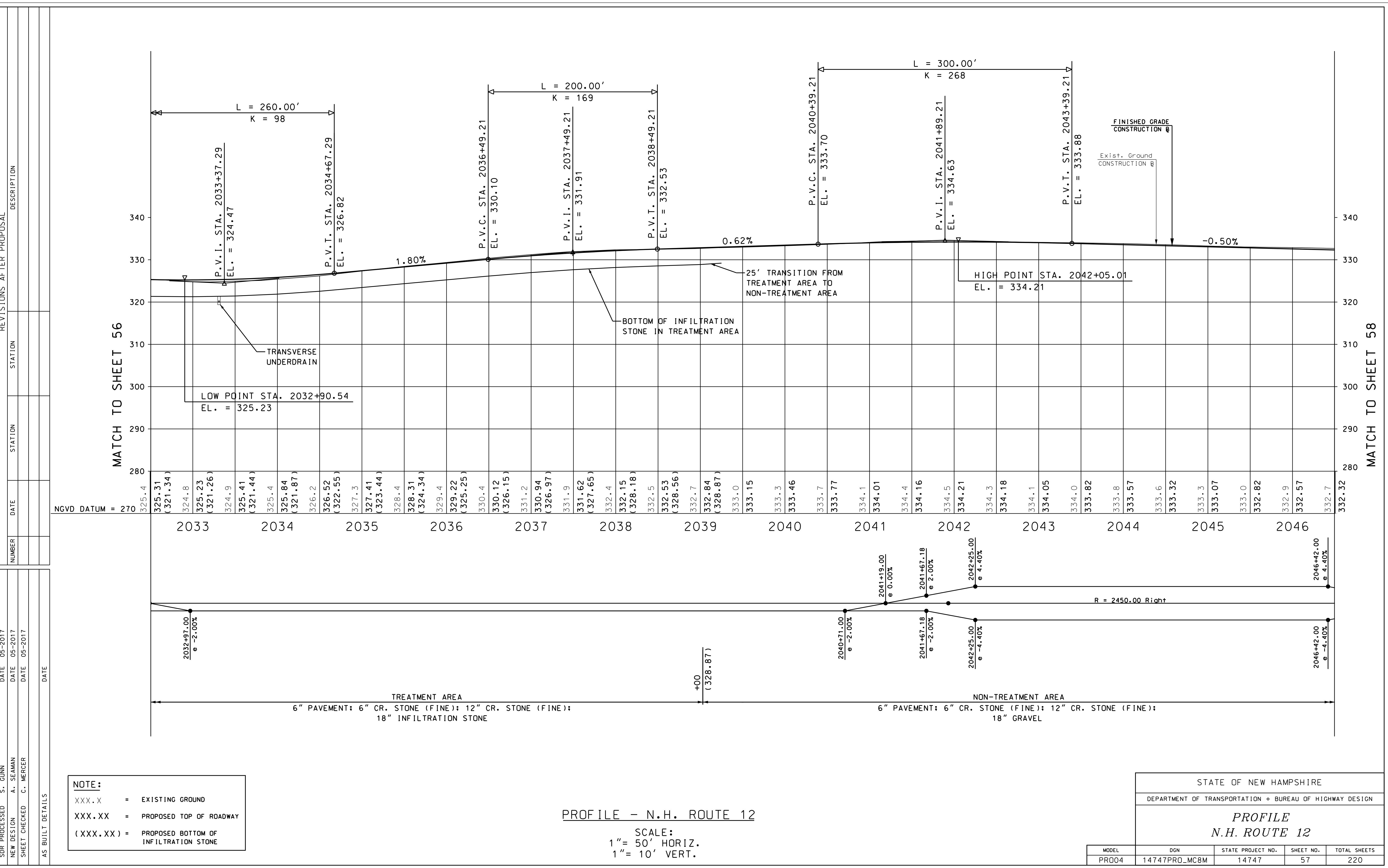
SCALE:
 1" = 50' HORIZ.
 1" = 10' VERT.

STATE OF NEW HAMPSHIRE

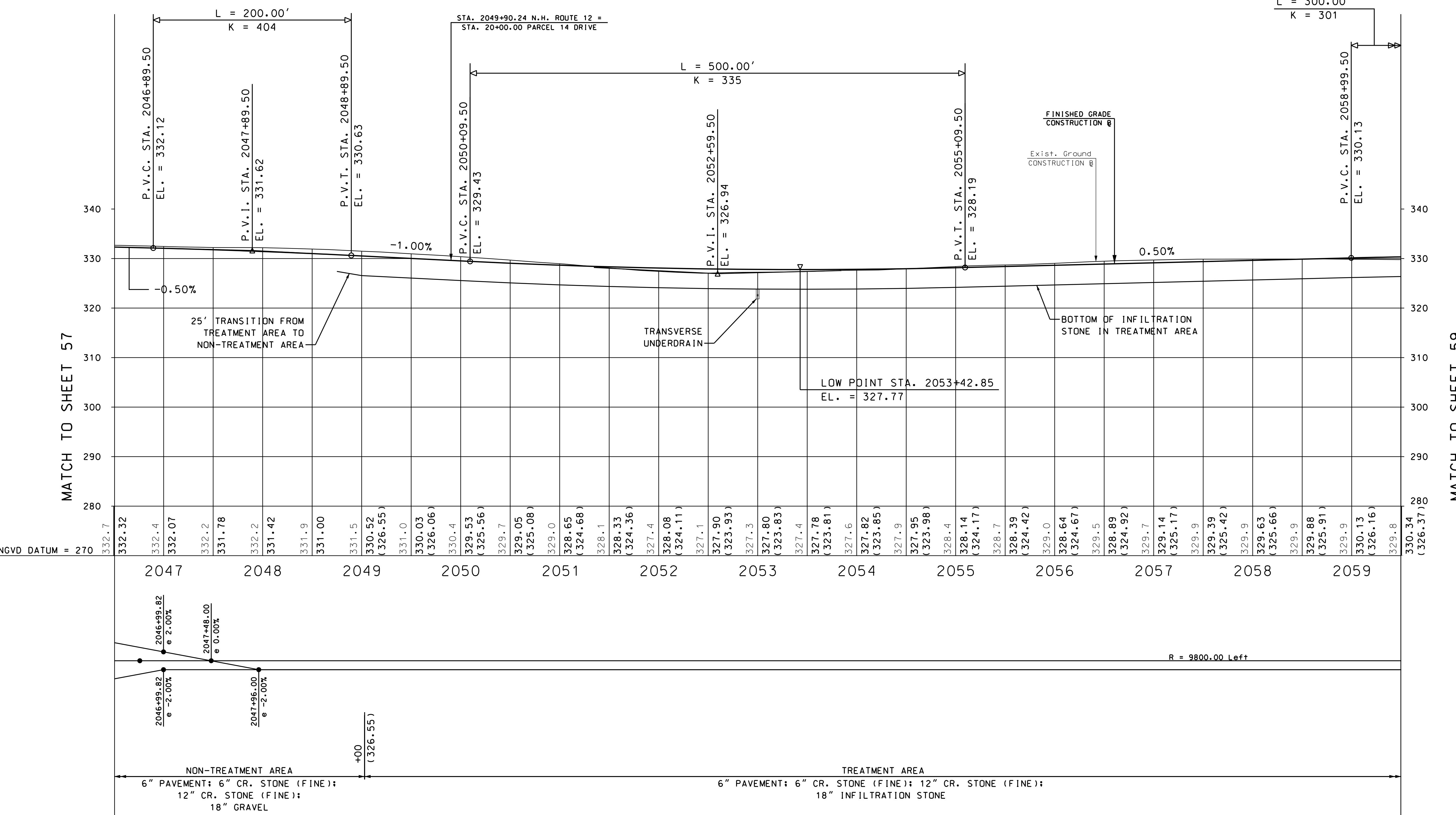
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

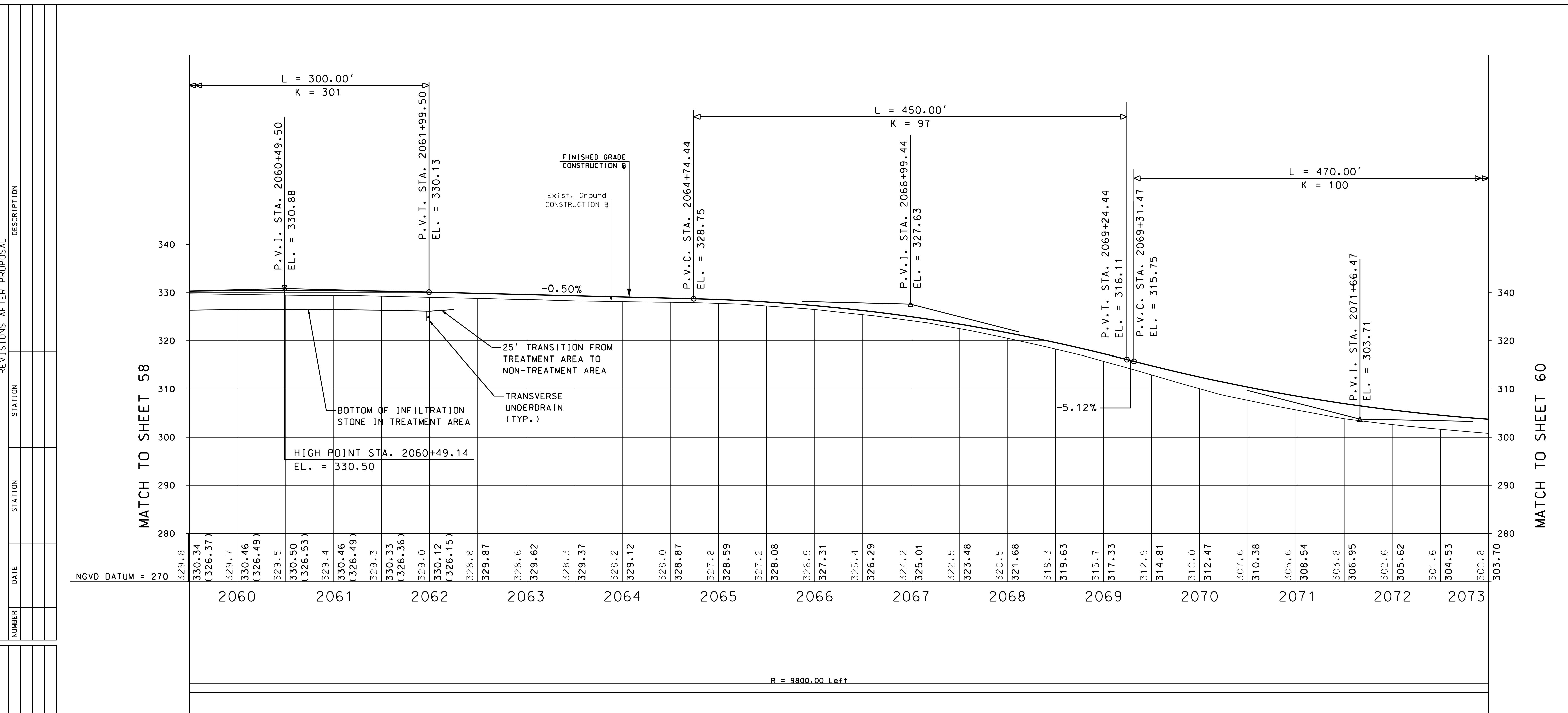
PROFILE
N.H. ROUTE 12

MODEL	DGN	STATE PROJECT NO.	sheet no.	total sheets
PRO03	14747PRO_MC8M	14747	56	220



SDR PROCESSED				S. GUNN	DATE	05-2017	REVISIONS AFTER PROPOSAL			
NEW DESIGN				A. SEAMAN	DATE	05-2017	NUMBER	DATE	STATION	DESCRIPTION
SHEET CHECKED				C. MERCER	DATE	05-2017				
AS BUILT DETAILS										





NOTE:

- XXX.X = EXISTING GROUND
- XXX.XX = PROPOSED TOP OF ROADWAY
- (XXX.XX) = PROPOSED BOTTOM OF INFILTRATION STONE

PROFILE - N.H. ROUTE 12

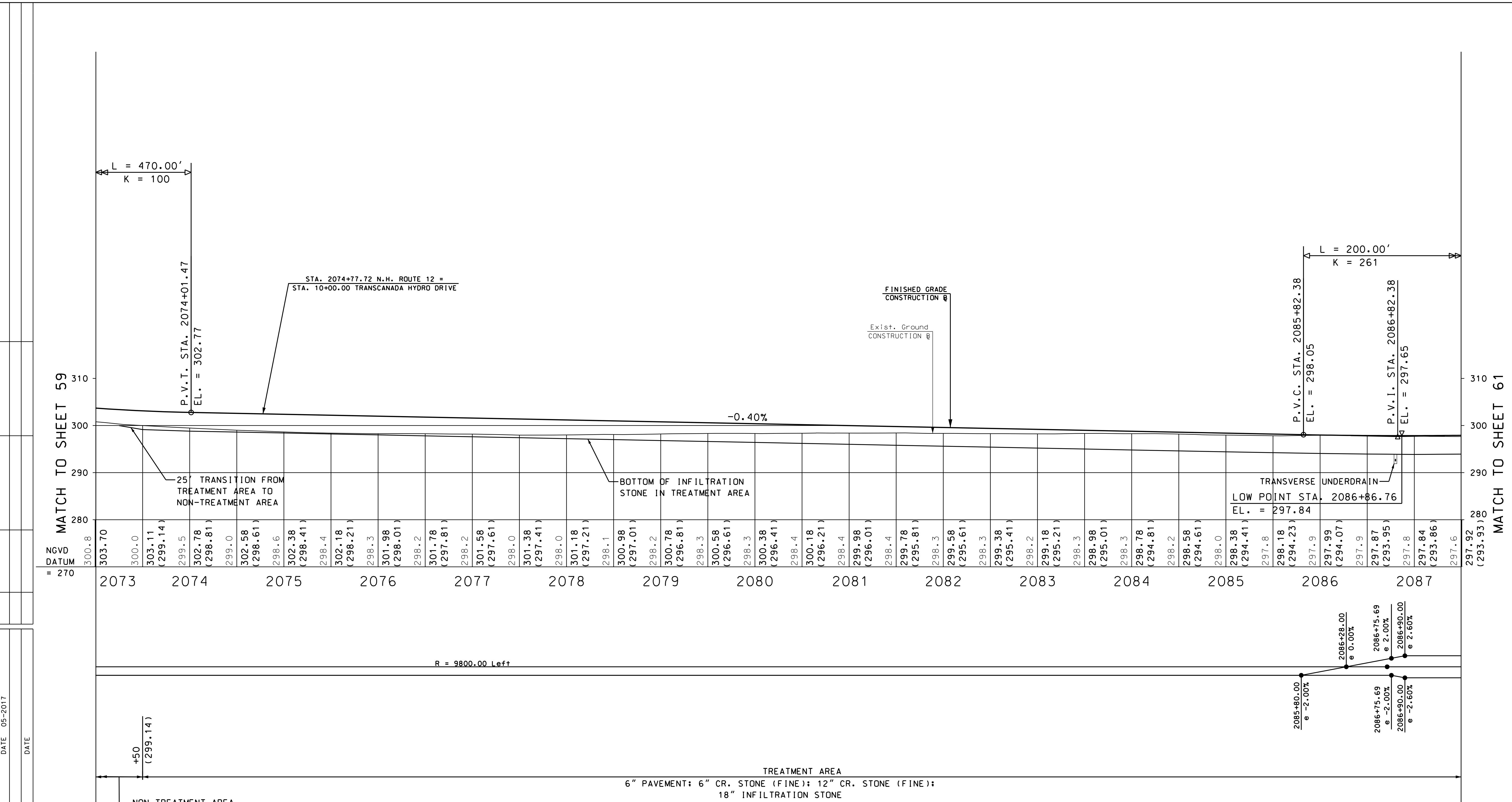
SCALE:
1" = 50' HORIZ.
1" = 10' VERT.

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

PROFILE
N.H. ROUTE 12

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PR006	14747PRO_MC8M	14747	59	220



NOTE:

XXX.X = EXISTING GROUND

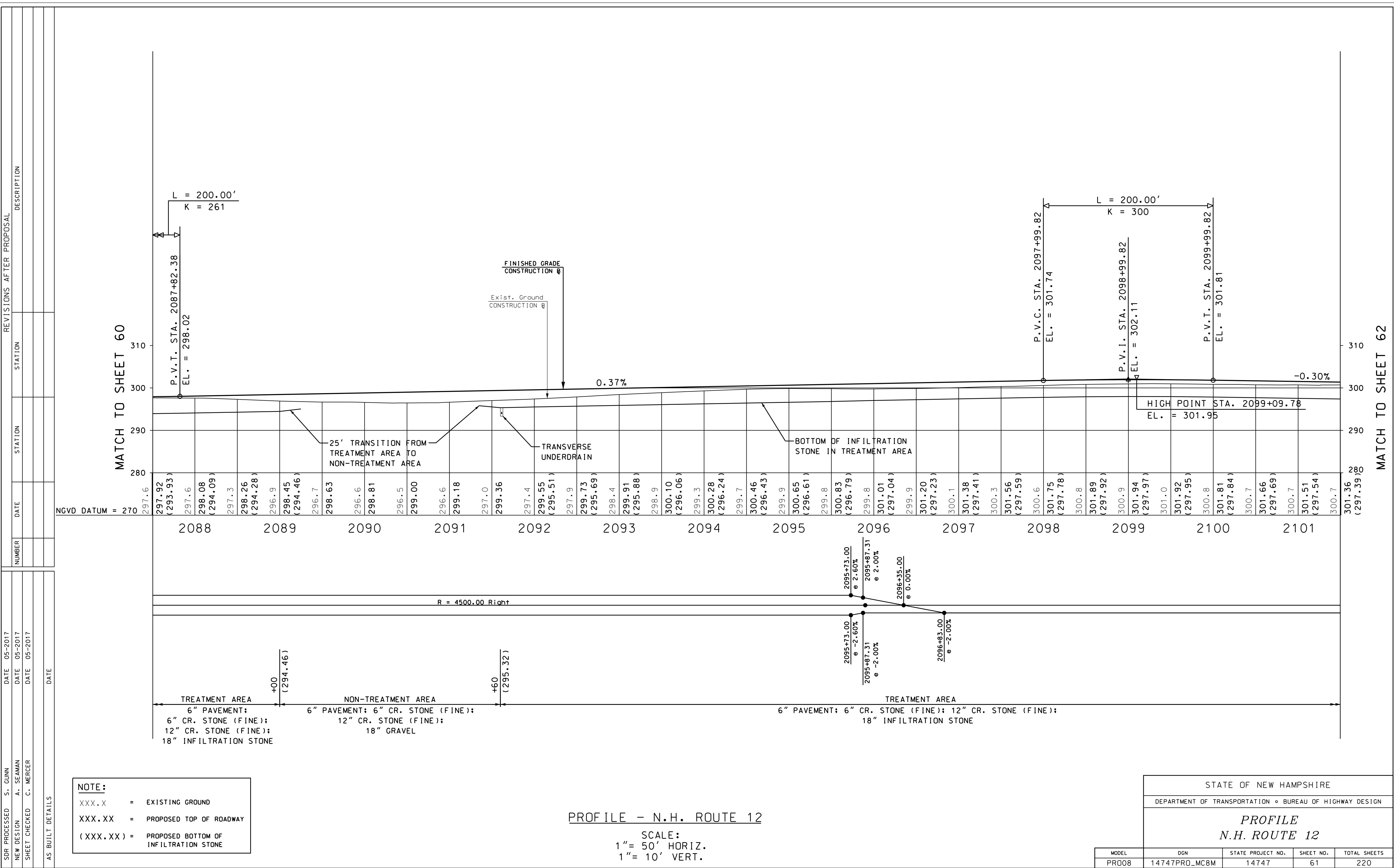
XXX.XX = PROPOSED TOP OF ROADWAY

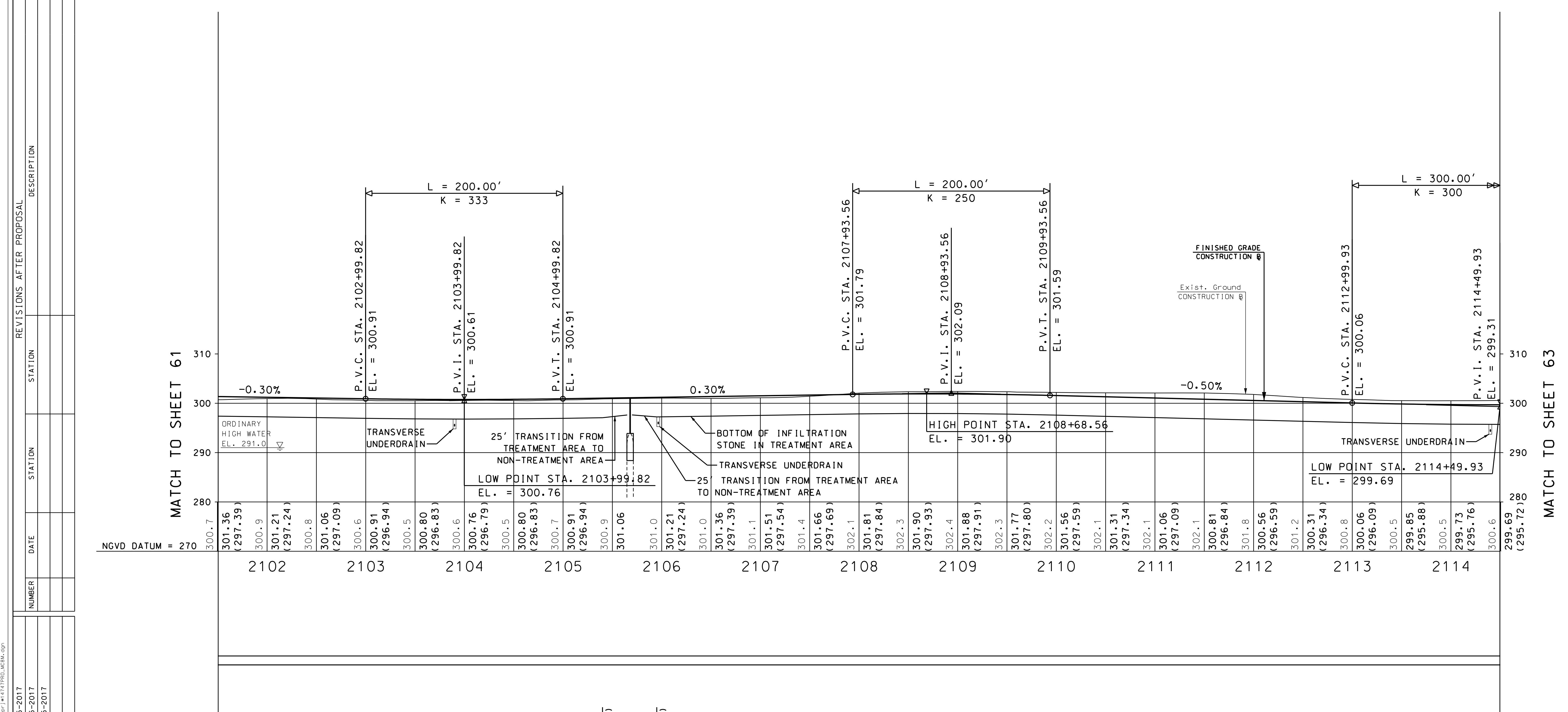
(XXX.XX) = PROPOSED BOTTOM OF
INFILTRATION STONE

PROFILE = N.H. ROUTE 12

SCALE:
1" = 50' HORIZ
1" = 10' VERT.

STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
<i>PROFILE</i> <i>N.H. ROUTE 12</i>				
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PR007	14747PR0 MC8M	14747	60	220





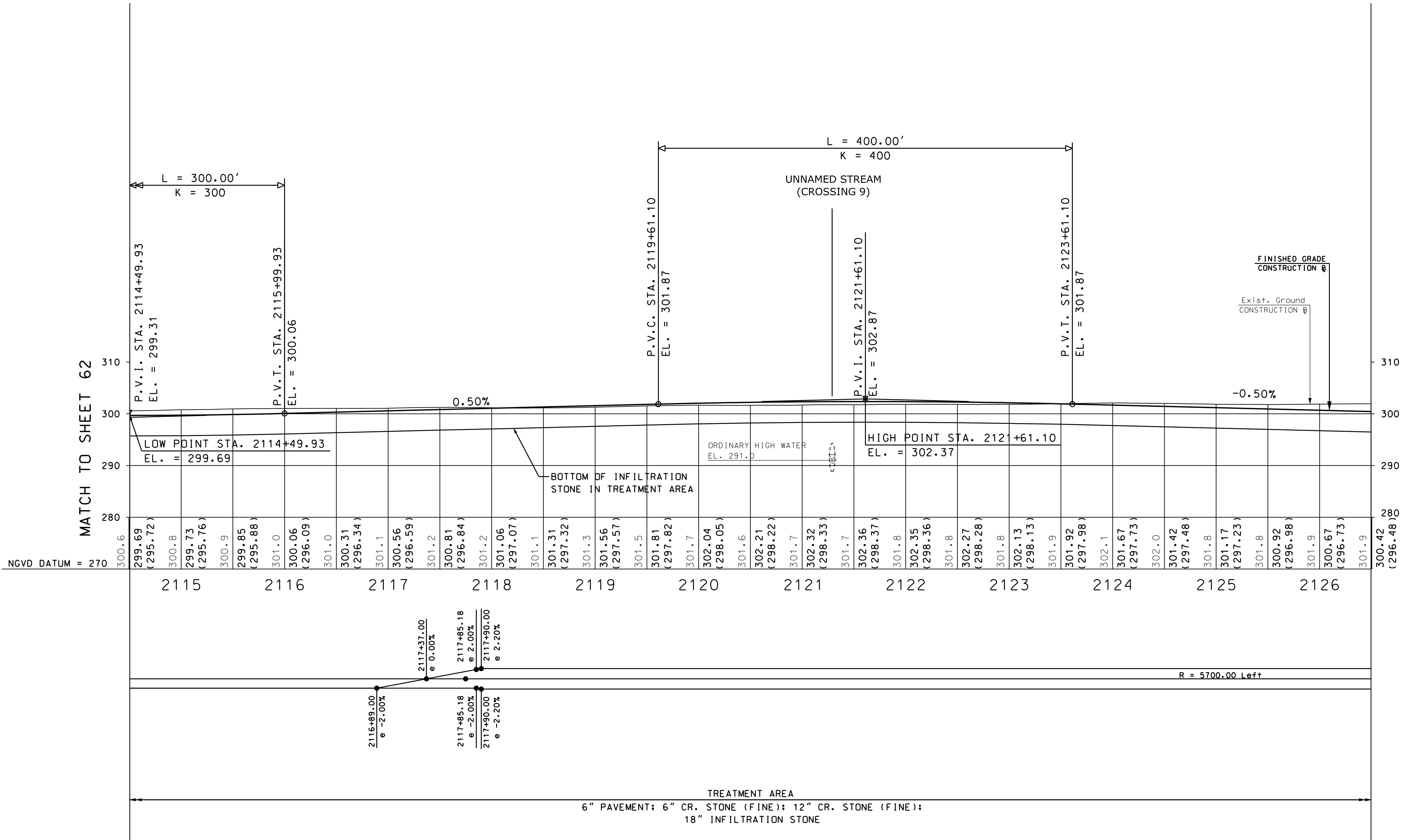
NOTE:

- XXX.X = EXISTING GROUND
- XXX.XX = PROPOSED TOP OF ROADWAY
- (XXX.XX) = PROPOSED BOTTOM OF INFILTRATION STONE

PROFILE - N.H. ROUTE 12

SCALE:
1" = 50' HORIZ.
1" = 10' VERT.

STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
PROFILE				
N.H. ROUTE 12				
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PRO09	14747PRO_MC8M	14747	62	220



TREATMENT AREA
" PAVEMENT; 6" CR. STONE (FINE); 12" CR. STONE (FINE
18" INFILTRATION STONE

PROFILE - N.H. ROUTE 1

SCALE:
1 " = 50' HORIZ
1 " = 10' VERT.

AS BUILT DETAILS				DATE
SDR	PROCESSED	S.	GUNN	DATE
NEW DESIGN		A.	SEAMAN	DATE 05-2017
SHEET CHECKED		C.	MERCER	DATE 05-2017

NOTE:

XXX.X = EXISTING GROUND

XXX.XX = PROPOSED TOP OF ROADWAY

(XXX.XX) = PROPOSED BOTTOM OF
INFILTRATION STONE

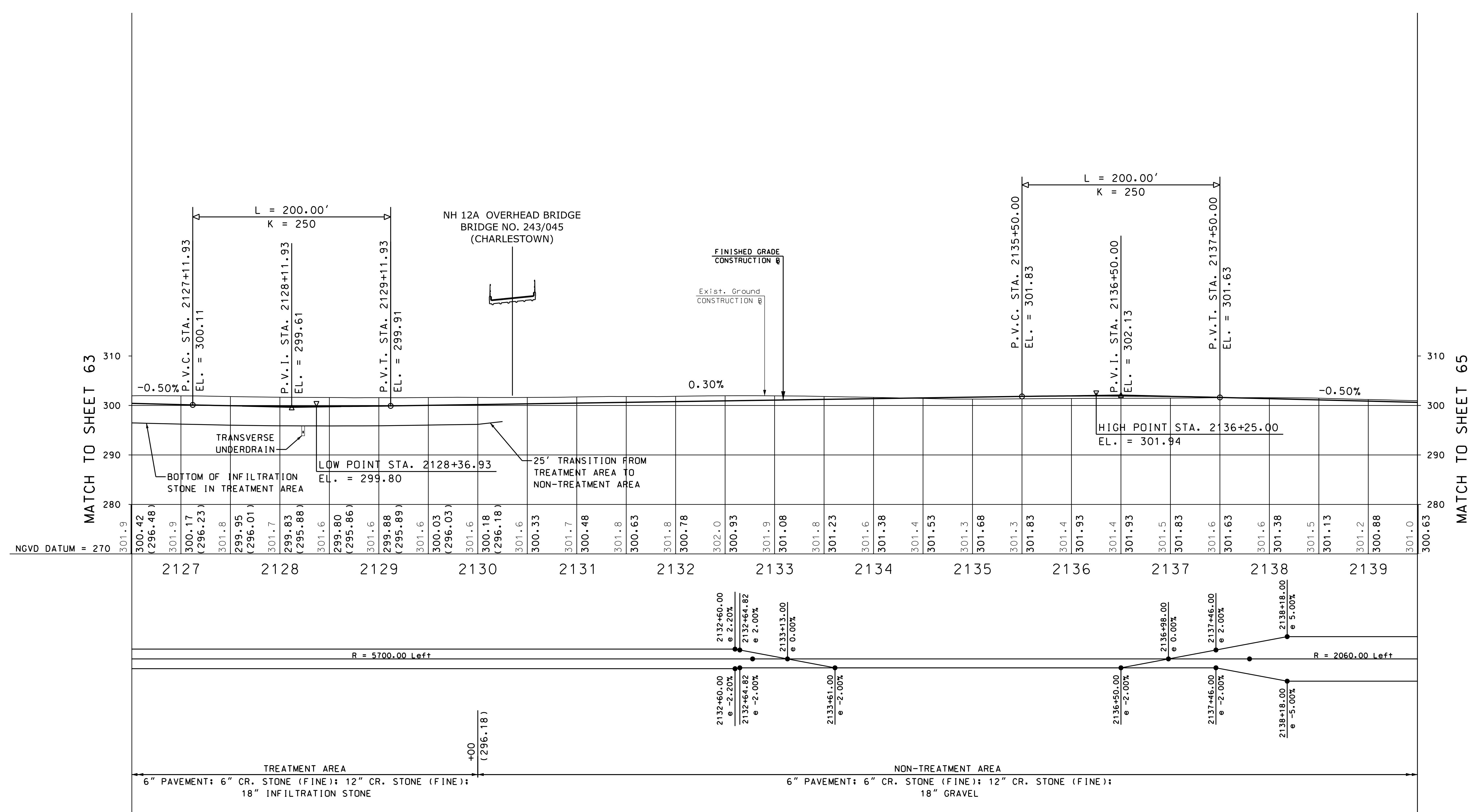
STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

PROFILE

N.H. ROUTE 12

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PRO10	14747PRO_MC8M	14747	63	220



PROFILE - N.H. ROUTE 12

SCALE:
1" = 50' HORIZ.
1" = 10' VERT.

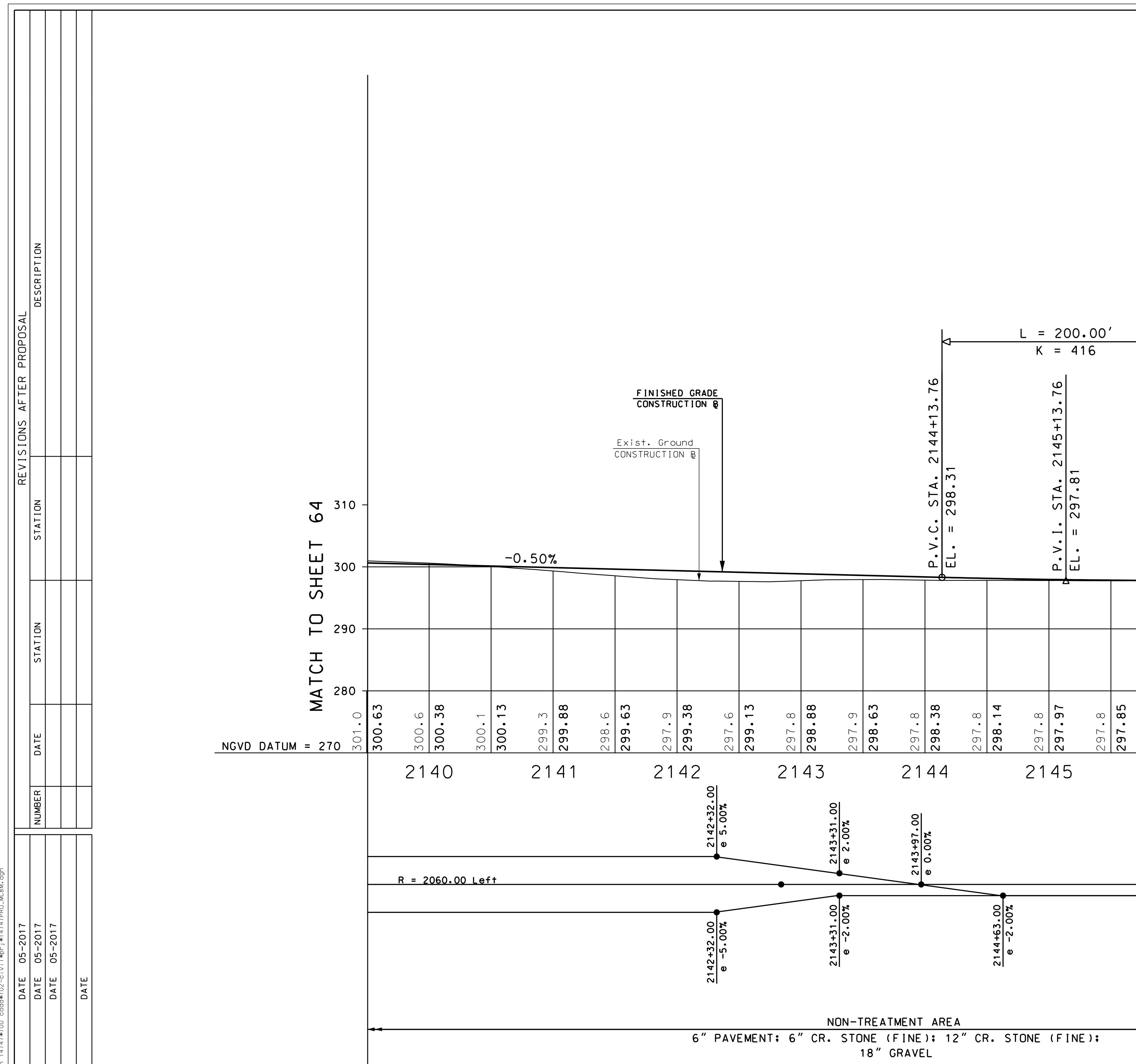
STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

PROFILE
N.H. ROUTE 12

MODEL	DGN	STATE PROJECT NO.	sheet NO.	TOTAL SHEETS
PRO11	14747PRO_MC8M	14747	64	220

SDR PROCESSED		S. GUNN	DATE	05-2017	REVISIONS AFTER PROPOSAL	
NEW DESIGN	A. SEAMAN		DATE	05-2017	NUMBER	DATE
SHEET CHECKED		C. MERCER	DATE	05-2017	STATION	STATION
AS BUILT DETAILS			DATE			



PROFILE - N.H. ROUTE 12

SCALE:
 1" = 50' HORIZ.
 1" = 10' VERT.

STA. 2146+75
END CONSTRUCTION
BEGIN APPROACH

STA. 2148+00
END APPROACH

STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
PROFILE			
N.H. ROUTE 12			
MODEL	DGN	STATE PROJECT NO.	sheet no.
PRO12	14747PRO_MC8M	14747	65
			220